

BEYOND THE PRECIPICE—AMID WAVES OF CHANGE:
STRATEGIC SCOUTS EXPLORE THE FUTURE

By

Scott W. Moore

Al Bedgood

Jerry Miller

September, 2000

Approved for public release; distribution is unlimited

The opinions expressed here are solely those of the authors and do not reflect the official positions of the U.S. Department of Defense, U.S. Special Operations Command, the Future Concepts Working Group, or the USAF Institute for National Security Studies.

DTIC QUALITY INSPECTED 4

20001027 031

ABSTRACT

Americans stand at the precipice of unprecedented change and challenge. The Internet with all of its enabling technologies is literally transforming reality—driving changes in all aspects of modern society: business, governance, militaries, interpersonal rituals, time, distance, privacy, and expectations. While the Information Age is certainly about the invasiveness and speed of mind-boggling information technologies; it is also about much more. It now seems clear that the Information Age is commanding pervasive and uncontrollable changes that will continue to test America's leaders, institutions, and national ideology. This study uncovers the key seeds of societal change, reveals future points of contention, and translates these changes into recommendations for civilian and military leaders. There are other deliverables throughout—tangible and intangible—that will help civilian and military leaders think anew about waves of change in the world. Predictions are not the goal of this endless research project, nor is it about defending answers about the future, although it does a little of both. Its primary contribution lies in the applied methodology and holistic approach. By applying new science theory to the original futures work of the United States Special Operations Command's Future Concepts Working Group, this research breaks new ground.

This page intentionally blank.

TABLE OF CONTENTS

I.	INTRODUCTION	1
	A. OVERVIEW	1
	B. BACKGROUND	2
	C. METHODOLOGY	4
	D. FINDINGS	8
	E. RECOMMENDATIONS	16
II.	THEORY	23
	A. OVERVIEW	23
	B. SOCIAL SCIENCE	25
	1. Organization Theory	25
	2. Information Theory	28
	C. POLITICAL SCIENCE	32
	1. Rational Actors	32
	2. Structural Realism	33
	3. Systems and Balance of Power	34
	4. Globalism	35
	D. NEW SCIENCE	39
	1. Chaos Theory	42
	2. Quantum Physics	43
	3. Self-organizing Systems	45

E. CHAPTER SUMMARY	49
III. ALTERNATIVE FUTURES	53
A. OVERVIEW	53
B. METHODOLOGY	55
Table 1. FCWG Drivers	58
C. RESULTS	60
1. Future B (Cyberland)	62
2. Future D (World Inc.)	64
3. Future F (Bladerunner)	66
4. Future H (Present Future)	69
D. CHAPTER SUMMARY	71
IV. ANALYSIS	73
A. OVERVIEW	73
B. ANALYTICAL FRAMEWORK (MODEL)	75
Table 2. Gross analysis of all alternative futures	76
Table 3. Example: Alternative Future Analysis	77
C. FUTURE ANALYSIS	78
1. State (U.S. Government)	78
2. Non-state Organizations	80
3. People	81

4. Rest of the World	80
5. Conflict	81
D. CURRENT ANALYSIS	85
1. State (U.S. Government)	86
2. Non-state Organizations	87
3. People	88
4. Rest of the World	89
5. Conflict	90
E. CHAPTER SUMMARY	91
V. CHANGE RESULTS	93
A. OVERVIEW	93
B. SOCIETAL CHANGE (TRENDS)	95
C. POINTS OF CONTENTION (VALUE)	99
D. CONSEQUENCES	102
VI. RECOMMENDATIONS	105
A. U.S. GOVERNMENT STRATEGY	105
B. U.S. MILITARY STRATEGY	109
C. TOPICS FOR FURTHER STUDY	111
APPENDIX	115
Table 4. Cyberland Analysis	116

Table 5. World, Inc. Analysis	119
Table 6. Bladerunner Analysis	124
Table 7. Present Future Analysis	129
Table 8. Current Analysis	136
 BIBLIOGRAPHY	 139
 ABOUT THE AUTHORS	 144
 INITIAL DISTRIBUTION LIST	 145

EXECUTIVE SUMMARY

Americans stand at the precipice of unprecedented change and challenge. This is not news to most people. The Internet with all of its enabling technologies is literally transforming reality—driving changes in all aspects of modern society: business, governance, militaries, interpersonal rituals, time, distance, privacy, and expectations. While the Information Age is certainly about the invasiveness and speed of mind-boggling information technologies; it is also about much more.

- How will society change in response to the information age?
- What things will increase in importance and thus become points of contention between state and non-state entities?
- How will these changes affect the U.S. military?

Predictions are not the goal of this ongoing research project, nor is it about defending answers about the future, although it does a little of both. Its primary contribution lies in the applied methodology and holistic approach. There are other deliverables throughout—tangible and intangible—that will help civilian and military leaders think anew about waves of change in the world, make better decisions for the long run, and prepare government institutions to proactively shape the strategic environment.

This study breaks new ground by applying new science theory and codifies portions of the futures work of the United States Special Operations Command's Future Concepts Working Group. Realizing that most readers today are busy reacting and therefore predisposed to the bottom line, here it is—when it comes to studying the future, the visioning process is more important than the product.

What matters most about the future can be found by studying the extreme behavior of three independent variables: economics (either global or hegemonic trade opportunities), technology distribution (in the hands of a select few or proliferated everywhere), and politics (power wielded and agendas determined above all by subnational or supranational actors). Different combinations of these variables create four intriguing alternative futures (Cyberland, World, Inc., Blade Runner, and Present Future), thus providing the case study and later backdrop for change analysis. Additionally, the new ways information is perceived, handled, and used changes much about societies and conflict.

It now seems clear that the Information Age is commanding pervasive and uncontrollable changes that will result in a dilemma for the United States as nation and the institutionalized national representatives—the government and military. Here are the findings:

- **Global will win over local.** At every level, those who stand to lose power and exclusive knowledge will resist change. Against their free will and better judgement, most will transform to accommodate a global economics perspective. This will necessarily relegate their businesses and institutions to a state of uncomfortable inclusion, a breathless pace of relentless competition, and a mixed sense of excitement and vulnerability. There will be severe ethical and moral quandaries as economic competition is played ruthlessly on a global scale.
- **The state will represent and include diverse societies everywhere.**
The Information Age permits people to identify with social groups that are

not necessarily in the same geographic place. Freedom from the bonds of geographical and local constraints stands to cleave the relationship between nations and states.

- **There will be greater disparity between the “haves” and “have-nots.”**

Access to information technologies will be the prerequisite and key enabler for individuals, organizations, and nations to seize economic and political opportunities. This will not be true for everyone, everywhere. The “haves,”—who will be competing at breakneck speed, will leave those without the means or opportunity to participate in virtual markets, societies, and intellectual debates—the “have-nots”—farther and farther behind.

- **There will arise an emissary class.** To accommodate for these disparities, organizations and nations will rely upon an assortment of cultural emissaries. These emissaries, or intermediaries, will thrive at the societal fringes. They will be needed to translate between agents, agencies, and alternative realities.

- **There will be more opportunities for discontinuous social evolution.** While many societies will be left behind in the confusion of the Information Age, there will be those who skip the various stages and norms of social evolution to arrive on the world scene as bona fide, capable actors.

- **Exclusionary biases will not last.** Even though there will be a pressure and business logic to include everyone in the global economy, individuals, societies, and national governments will try to exclude particular

individuals and groups. These exclusionary biases will not last because information defies boundaries and the network will find a way to conduct business, share ideas, and influence global conscience or perceptions.

All variations of the future warn those concerned to proactively change industrial-era mindsets, structures, and procedures. The scenarios tell leaders to prepare to deal with the excluded peoples everywhere—and that there will be more of them than there are of us. The Information Age compels American leaders to break from US-centricity and to think globally due to the ubiquitous nature of the network. In future warfare, there is a clear need to unbound doctrinal battlefields and battlespaces—there are potential combatants everywhere with the means to reach affect systems and perceptions. This means that military and civilian leaders need to better appreciate the complexity and diversity of infinite target sets. Lastly, leaders and institutions must be postured to make possible decision superiority and seize the opportunities brought about by change. Other suggestions include:

- Do not take American ideology for granted—tend to the American myth.
- Recognize and repair schizophrenic national policies.
- The U.S. government must accept the role of truth-teller.
- Government representatives must be available and responsive to public needs at all times—24 hours a day, seven days a week.
- National and local taxation will become a contentious issue.

- The proliferation of weapons of mass destruction and weapons of mass effect may justify new laws, enforcement methods, and jurisdiction considerations.
- The Information Age makes governance harder and more complex.
- Seek to understand and synchronize information operations to accommodate unbounded and cluttered battlefields.
- The key to relevant military power will lie in a new class of precision effects—discriminating weapons aimed at empowered individuals.
- The world will sit in judgement as the Information Age shows them how, when, where, and to what extent force is applied in the name of national interest.
- Military force needs to punctuate carefully crafted national paragraphs.
- Conflict and competition will be continuous, relentless, and worldwide
- Shaping takes on a greater significance, requiring new strategic-minded forces.
- The military must prioritize education and encourage extended careers.
- Although national security may not be at stake, count on intrastate conflict to flourish and command military resolution.
- Conflict prevention measures involving emissaries and aid programs will prove to be bargains as the cost of national warfare rises in the future.

The burden for purposeful change and leadership rests squarely upon American shoulders. Now is the time to understand what is at stake and to take deliberate steps to bring order to disorder.

ACKNOWLEDGEMENTS

Not unlike embarking on a physical trek in uncharted and unpredictable territory, this cerebral journey into the future involved the support and encouragement of many other people. First of all, the authors owe a tremendous debt to General Peter J. Schoomaker, the Commander-in-Chief of the United States Special Operations Command (USSOCOM) for his vision, mentorship, and priceless investment in the development of unconventional thinkers. He empowered and supported the visioning process at a time when few others would. To him, investing the necessary time and energy in projects that teach others how to think, as opposed to what to think, makes sense. To those of us who have benefited from his leadership, the experience has changed our lives.

Credit for the originality and synthesis of the alternative futures belongs to the USSOCOM Future Concepts Working Group (FCWG). The FCWG is an enthusiastic, strategic-minded forum with a broad membership roster. Their patience, hard work, and inquisitive attitudes are making qualitative improvements throughout the military, other government agencies and supporters, and particularly within the special operations community.

A special thanks to those who painstakingly read and critiqued our drafts: Marie Matthey, Ed Dillenschneider, Bob Berry, Catherine Maguire, Jon Giese, Todd Massidda, and Bruce Reider; to Tom Tait for his extraordinary library assistance and research recommendations; and to our families who supported our effort that eclipsed many an evening and weekends for nearly a year.

I. INTRODUCTION

A. OVERVIEW

This paper chronicles a cerebral journey into the future—a quest for clarity and meaning during an unprecedented period of societal change and uncertainty.¹ Although change is not new, lately it seems as though something about change has *changed*. Holman and Devane, editors of *The Change Handbook*, contend that change today is earning a bad reputation due to its tremendous speed and invasive scope.² If change is bad, then matters are even worse when uncertainty—a byproduct of complexity—is added to the soup. By combining traditional scientific methodology in conjunction with a holistic approach, this research attempts to answer the following interminable questions:³

- 1) How will society change in response to the information age?
- 2) What things will increase in importance and thus become points of contention between state and non-state entities?
- 3) How will these changes affect the U.S. military?

There are other pearls throughout this work that will help civilian and military leaders think anew about waves of change in the world, make better decisions

¹ Peter Schwartz calls this period (1980-2020) an “historic opportunity...a period of remarkable global transformation”. He argues: “No other age ever possessed the tools or the knowledge to do what we can today...megatrends—technological change, economic innovation, global integration, and spreading democratization—have picked up momentum since the early 1980s, particularly in the developed countries best positioned to take advantage of them...This is no ordinary opportunity. This is not just a once-in-a-generation opportunity. Only occasionally in the great sweep of history is there an opportunity like the one before us now.” Peter Schwartz, Peter Leyden, and Joel Hyatt, *The Long Boom: A Vision for the Coming Age of Prosperity* (Reading, Massachusetts: Perseus Books, 1999), 2-3.

² Peggy Holman and Tom Devane, *The Change Handbook: Group Methods for Shaping the Future* (San Francisco, California: Berrett Koehler Publishers, Inc., 1999), 1.

³ This research is sponsored by the USAF Institute for National Security Studies (INSS).

for the long run, and prepare their government-institutions to proactively shape the strategic environment.

B. BACKGROUND

The motivation for this project began with the intuition that the Information Age has ushered in an era of social perturbation and unpredictability that will change even the most basic foundations of peoples' lives.⁴ Most people believe that the Internet is responsible for drawing the world into this adventure. Peter Schwartz puts it this way: "The Internet has evolved to the point where it now acts like a giant circulatory system for ideas...(soon these ideas take on lives of their own)...out of anybody's control...This is one of the most powerful yet under-appreciated aspects of the Internet. It provides the infrastructure that allows an idea to be introduced, tested, improved, refined, and distributed far faster than in any other era. It speeds up a process that previously took years or even decades."⁵ The Internet with all of its enabling technologies is literally transforming reality—driving changes in all aspects of modern society: business, governance, militaries, interpersonal rituals, time, distance, privacy, and expectations. Who is in charge? When will the big changes be over? What will societies become? How will people know what matters? Why would

⁴ "The links here are profoundly causal: the more uncertainty has spread since the end of the Cold War, the more are analysts inclined to seek panaceas for instability and thus the more have they latched onto recent strides in complexity theory in the hope that it will yield solutions to the intractable problems that beset us. No less important, all these links—the uncertainty, the search for panaceas, and the strides in complexity theory—are huge, interactive, and still intensifying, thus rendering the causal dynamics ever more relevant to the course of events." James N. Rosenau, "Many Damn Things Simultaneously: Complexity Theory and World Affairs," *Complexity, Global Politics and National Security* (Washington, D.C.: Institute for National Security Studies, National Defense University, November 13, 1996) available from <http://www.ndu.edu/ndu/inss/books/complexity/ch04.html>; accessed 10 August 2000, p. 1 of 11.

governments allow such things to happen? Where will I fit in? These are the sorts of questions that make this study so compelling, timely, and important to the world at large—and to Americans in particular.⁶ The burden for purposeful change and leadership rests squarely upon American shoulders.⁷ Now is the time to understand what is at stake and to take deliberate steps to bring order to disorder.

The timing for this report is excellent as it complements the work-in-progress of the United States Commission on National Security/21st Century, better known as the Hart-Rudman commission. Having completed the first two phases of a three-phase report, the commission plans to release a government reorganization strategy next Spring that "will offer recommendations for enhancing the U.S. government's ability to function effectively in a rapidly changing political and technological environment."⁸ In addition, the Department of Defense (DOD) is undergoing its Quadrennial Defense Review (QDR), an

⁵ Schwartz, *The Long Boom*, 1-2.

⁶ "The United States today is the world's great geopolitical shaper. While it would be too much to say that the United States is in charge of globalization, it is the country with the greatest ability, for the moment, to shape the coalitions that can manage globalization geopolitically." Thomas L. Friedman, *The Lexus and the Olive Tree* (New York: Anchor Books, 2000), 204.

⁷ "I will start with a simple invocation, using the basic metaphor that was the theme of the election four years ago, 'It's the economy, stupid.' My invocation is, 'It's leadership, stupid.' That is to say that the United States has no choice—literally has no choice—but to exercise leadership in world affairs. It is not a question of whether we want to or not, it is a question that we must—literally, must. I want to stress that point because in recent times there has been a significant change in our psychological posture, as a nation." Zbigniew Brzezinski, "America in the World Today" Complexity, Global Politics and National Security (Washington, D.C.: Institute for National Security Studies, National Defense University, November 13, 1996) available from <http://www.ndu.edu/ndu/inss/books/complexity/ch02.html>; accessed 10 August 2000, p. 1 of 6.

⁸ U.S. Commission on National Security/21st Century, "Seeking A National Strategy: A Concert For Preserving Security And Promoting Freedom (Washington, D.C., April 15,

introspective analysis upon which to base future DOD strategies, force structure, and readiness. And in January 2001, a new political administration—potentially unfettered by the aftermath of the Cold War—will be installed in Washington. In some small way, perhaps, this research will prepare them for the future conflicts that lurk in the shadows of the new millennium.

C. METHODOLOGY

Leveraging the ideas and originality of many respected authors, scientists, and futurists, this study breaks new ground by applying new science theory combined with social science and political science theories against a tapestry of alternative futures provided by the United States Special Operations Command's Future Concepts Working Group (FCWG).⁹ The rubric of societal change is

2000), 16. Phase III, "Building For Peace", is scheduled to be released March 15, 2001. Refer to www.nssg.gov for the latest.

⁹ To be respected as a political scientist, researchers are taught to follow format conventions and to judiciously apply theory. Loose, nonlinear applications are frowned upon, considered sloppy or uninformed. That is not to say that innovative thinking is not possible, but hand waving in lieu of documentation is a sure sign of a weak argument in the eyes of political scientists. Political science literature relies heavily upon historical lessons. Social science loosens the reins of methodology a bit, but also struggles for legitimacy in the scientific world. This often means sticking to codified logic based upon the unchanging nature of man. The human brain is optimized, therefore don't expect people and societies to radically change. There will be key variables at work—there always are, so social scientists simply reduce scenarios to the variables that matter most. New science, however, is gaining popularity because it focuses on the interrelationships among seemingly inconsequential variables that can lead to big changes in chaotic systems. New science is compelling because it—like us—expects to be surprised by the ways of the world. Quantum physics is a key portion of new science that frustrates scientists to no end. Those who dare to delve into its domain never see the world the same again. The heroes in this quest for knowledge are futurists. They exploit the fringes of human understanding and strive to push the bounds of possibility. We find aspects of all of this literature useful, but most have been relegated to artificial corners of academia and underused by military planners. New science comes closest to breaking scientific paradigms—this paper will attempt to forge further ahead. "When we attempt to tackle such difficult problems, we naturally tend to break them up into manageable pieces. That is a useful practice, but it has serious limitations. When dealing with any nonlinear system, especially a complex one, it is not sufficient to think of the system in terms of parts or aspects identified in advance, then to analyze those parts or aspects separately, and finally to combine those analyses in an attempt to describe

analyzed with respect to the state, non-state actors, the American people, and the rest of the world. In the end, after considering alternative trends, valued resources of all kinds, and mixed sources of conflict, inescapable conclusions come to the fore that will change the ways leaders understand and view the world.

Cyberland is the first alternative futures scenario that contributes to the case study. Cyberland presents a world of hegemonic economies, distributed technologies, and sub-national politics. In this scenario major corporate entities (technology, transportation, energy, commerce, etc.) have combined to create a virtual, universal business conglomeration (UBC). Sub-national entities formed by varying mixes of legitimate businesses, illegal organizations, nation-states, and non-state actors dominate the political landscape. These sub-nationals ably superimpose their agendas over the will and values of the individual nation-states, posing challenges to the less-agile federal and state governments. Governments struggle against the UBC's capacity to manipulate information and dominate the political environment. Legitimate governments attempt to come to grips with the legal ambiguity, lack of accountability and ethics, and asymmetrical

the entire system. Such an approach is not, by itself, a successful way to understand the behavior of the system. In this sense there is truth in the old adage that the whole is more than the sum of its parts. Unfortunately, in a great many places in our society, including academia and most bureaucracies, prestige accrues principally to those who study carefully some aspect of the problem, while discussion of the big picture is relegated to cocktail parties. It is of crucial importance that we learn to supplement those specialized studies with what I call a crude look at the whole." Murray Gell-Mann, "Simple and the Complex" Complexity, Global Politics and National Security (Washington, D.C.: Institute for National Security Studies, National Defense University, November 13, 1996), available from <http://www.ndu.edu/ndu/inss/books/complexity/ch11.html>; accessed 10 August 2000, p. 6 of 9.

and asynchronous advantages of powerful sub-national organizations and transactions.

World, Inc. is the second alternative scenario. This future combines global economics with constrained technologies and sub-national politics. The world operates within one large, open economy and a single global stock market. The Global Bank controls all monies, making loans primarily to legitimate states and large non-state conglomerates. Major corporations and other entities have combined to create large transnational corporations comprised of varying mixes of legitimate businesses, illegal organizations, and non-state actors. Even with a global economy, those who reap financial benefits have the most up-to-date technologies and are aligned with other people and organizations with similar capabilities. There is a great disparity between the “haves” and “have-nots.” Lack of education and few opportunities to catch up cause deprived masses to fight for survival all over the world. Free-market capitalism has no conscience, showing little sympathy for those left in its wake.

Bladerunner, the third alternative future, consists of global economics, distributed technologies, and sub-national politics. Major corporations and other entities have combined to create fiercely competitive transnational corporations. These large corporations combine legitimate businesses, illegal organizations, nation-states, and non-state actors—whatever it takes to dominate the political environment. While there is no widespread poverty in this world, the rich are very rich. Corporate social safety nets replaced those formerly provided to citizens by their national governments. The ubiquitous distribution of technology

allows rapid, immediate transmissions of information and services to any place in the world. Although the Global Bank controls all monies and loans, the world runs on one open economy and a combined global stock market.

A scenario called Present Future describes the fourth alternative future. Present Future incorporates hegemonic economies and constrains technologies within a supranational political environment. In this world, supranational alliances supplant many of the traditional powers of individual nation-states. The common bases for these transnational conglomerates are business interests, mutual security, religion, culture, environmental issues, and geography. The United States must act within the greater interests of its supranational political entity to legitimize and achieve its goals. Only a few of the supranational entities have the most advanced technology which allows real-time information (about anyone and everything) to be accessed. The U.S. and its supranational group have a significant technological edge.

This alternative futures four-pack forms the makings of an inventive case study.¹⁰ Taken together, they are intended to cover the most probable, challenging, and interesting future context against which to ask questions about societal change, areas of conflict, and national responses. The case study is purposefully complex, amenable to "fuzzy logic", and more descriptive than predictive.

¹⁰ "Scenarios are not conceived of one at a time. You develop a range of two or three possible futures, allowing you to address the array of possibilities and rehearse the responses to each of them." Peter Schwartz, *The Art of the Long View: Planning for the Future in an Uncertain World* (New York, Bantam Doubleday Dell Publishing Group, Inc., 1991), 28.

D. FINDINGS

Americans stand at the precipice of unprecedented change and challenge. While the past has offered many things, it may not have prepared citizens today for the size, scope, or rapidity of the changes and challenges yet to come. The Infosphere is to the 21st Century what Guttenberg's moveable type printing press was to the 15th Century—nothing short of a sweeping revolutionary change in how people communicate ideas and amass knowledge. The advent of movable type ushered in an era of change so profound that it quite literally redefined Western civilization. Today's Information Age revolution began decades ago and like some modern-day Rip Van Winkle, people are just now waking, yet to realize just what has happened to our societies—and to us. This explosive, free flow of information and ideas, truth and deception, myth and fact has already changed people in ways they have yet to understand, and will change societies even more so in ways most cannot yet imagine.

The contemporary world is in transition. The future presents many different definitions of statehood, nationhood, civilization, and even race. The swirling currents of First-, Second-, and Third-Ring civilizations are replacing first, second, and third worlds of the recent past.¹¹ The First-Ring civilizations are

¹¹ "What blew away all these walls were three fundamental changes—changes in how we communicate, how we invest and how we learn about the world. These changes were born and incubated during the Cold War and achieved a critical mass by the late 1980s, when they finally came together in a whirlwind strong enough to blow down all the walls of the Cold War system and enable the world to come together as a single, integrated, open plain. Today, that plain grows wider, faster and more open every day, as more walls get blown down and more countries get absorbed. And that's why today there is no more First World, Second World or Third World. There's now just the Fast World—the world of the wide open plain—and the Slow World—the world of those who either fall by the wayside or choose to live away from the plain in some artificially walled-off valley of their own, because they find

where information and technologies cooperate to assimilate and transform information into knowledge and action. These civilizations are absolutely dependent upon the Infosphere for everything required to manage a diverse, global society—they are residents of a Cyberlization. These netizens of Cyberlization are the citizens of a new Rome, the Empire without walls.¹² They live, work, interact, and relate in an environment and a world that cannot exist without constant access to information. They are at once the most empowered by technology and the most susceptible to the disruption or destruction of that technology.

There are also citizens of the Third-Ring, those left behind or excluded from the risks and rewards of the new global Cyberlization. These individuals represent the bulk of the human race and they exist on every continent on the planet. They are the dispossessed in this new era. While they are affected and effected by the New Rome, they are often unaware of its influence—or its existence. It is a nameless, shapeless thing with no direct impact upon their daily lives. In a sense these are the “meek” and they have inherited the earth in a very real sense.

Civilizations of the Second-Ring are riding the backside of the technology curve. Much as with the old second world, these citizens of the global village live

the Fast World to be too fast, too scary, too homogenizing or too demanding. Friedman, 45.

¹² “Netizens” describes those in societies who feel that they belong to the amorphous citizenry of borderless cyber-states, or “Cyberlizations.” Netizens depend upon the Net for everyday living.

with limited, obsolete, and often unreliable access to the Cyberlization.¹³ Their access may be limited due to technology, ideology, location, religion, time, or perhaps even by choice. They generally understand the capabilities, benefits, and even the limitations of the information technology that now drives the world, but they have not yet embraced it, or become embraced by it. Unlike their ancestors however, they are capable of moving within both of the other two realms of existence. It is perhaps these individuals, the ones with access and understanding of both the First- and Third-Rings of the Cyberlization, who have the most to gain by exploiting their unique position. They may well become the emissary class, acting as the Templars of old as they maneuver between the gleaming silicon towers of the First-Ring and the electric-free villages of the Third-, building alliances, managing trade, offering salvation, and providing protection.¹⁴

Non-state actors will continue to grow in power, prestige, and importance in the world. They may even evolve into Cyber-nations, or nation-states in their own right. We may see a return to the models of statehood existent prior to the Peace of Westphalia. The new Global Cyberlization will offer an almost endless variety of national or group identities for non-state actors and individuals. The global stage will become far more crowded in the near-term as these new entities

¹³ Alvin and Heidi Toffler are credited with the First-, Second-, and Third-Wave descriptions of the world. Our use of the Ring-Worlds focuses on subsets of the Third-Wave. Even in the most advanced nation-states, we believe that there will be areas where the global grid is inaccessible (due to vast areas of depopulation or wilderness).

¹⁴ The Knights Templar were the first Warrior Monks—a monastic order formed to protect Christian pilgrims en route to the Holy Land. See “A History And Mythos of the Knights Templar...” available from <http://intranet.ca/~magicworks/knights/who.html>; accessed 18 Sep 00.

vie with the old established ones for recognition, dominance, and validation in a world where access to the Global Grid may be more important than the number of nuclear weapons in national inventories.

As traditional roles for government and business entities continue to change, the role of individuals will change too. Individual will have more control over their lives, but much less privacy. Reliance in the traditional sense on the bureaucracy of the state becomes less important as individuals are empowered to act upon their own interests. The state must adapt to the change by appealing to individuals and otherwise compelling them to maintain their relationships with the state, or the traditional nation-state will become obsolete, abandoned in favor of some new more effective and efficient model.¹⁵ Perhaps the role of the nation-state will devolve to one of simply maintaining the peace and security necessary for a Netizen of the new Global Cyberlization to function as a citizen of a borderless Cyber-state.

Conflict will come in many ways and many forms but the reason why people will fight remains unchanged. They will continue to fight for power and control, ideology and religion, protection and envy. The nature of humanity will not change quickly or easily. Power will reside in the hands of those entities that can control and manipulate information, including perceptions, and dominate the

¹⁵ "Global public policy networks, which are loose alliances of government agencies, international organizations, corporations, nongovernmental organizations, professional societies, and other social groups, are becoming major political actors. States are like dinosaurs toward the end of the Cretaceous Period: powerful but cumbersome, not yet superseded but no longer the unchallenged masters of their environment." Steven Metz, "Armed Conflict in the 21st Century: The Information Revolution and Postmodern Warfare" (Carlisle Barracks, PA, Strategic Studies Institute, U.S. Army War College, February 11, 2000), 12.

Infosphere. The reactions and desires of those who want control, or feel slighted for not having it, will allow nontraditional sources to create new “armies,” new means, and new ways to fight for the information they desire. Individual grass roots movements will form to react to any situation where technology becomes constrained, or even too free; where the rights of the individual are forfeited in the name of control; or anywhere empowered interests clash with the interests of the state. Another source of conflict will be along the lines that divide the information-rich (Third-Ring) societies from the information-poor (First-Ring) societies.¹⁶ It is here at the cultural edges where the greatest dangers and opportunities exist. Violent activity in the form of terrorist actions will arise in some future scenarios, especially those in which stifling constraints are imposed upon some organizations and individuals.¹⁷

In some ways, most of the conclusions are not surprising. In other ways, however, it now seems clear that the Information Age is commanding pervasive and uncontrollable changes that will result in a dilemma for the United States as nation and the institutionalized national representatives—the government and military. It seems improbable in the Information Age, which empowers networked individuals and organizations at the expense of hierarchical government actors,

¹⁶ Consider the ramifications for conflict between and among societies with the following distinctions: 1) First Ring: The New Cyberlization. Most empowered and dependent upon the Global Information Grid and the Infosphere for existence, advancement, and sustainment. 2) Second Ring: The Border Zone. Second class citizens in the New Rome, however, much like the middle classes of the Middle Ages, they are the ones to watch, for they have the ability to move between the first and third rings with relative ease. 3) Third Ring: The Steppes. Isolated from the New Rome/Global Cyberlization for a variety of reasons these are the nomads, the primitives, and the disenfranchised of the Cyberlization.

¹⁷ “One of the key features of TCOs [Transnational Criminal Organizations] is that they link ‘zones of peace’ and ‘zones of turbulence’ in the international system.” John Arquilla and

that the nation-state will remain as powerful and preeminent as it is today. That is not to say that the nation-state will be weak or irrelevant, but the nation-state will continue to weaken in comparison to supra-national and sub-national entities of all kinds. As protectors of American society, values, rights, and freedoms, the United States government and military find themselves at a particularly awkward and critical juncture where the United States as a nation may not be represented by their institutions. What will it mean to be an American in the future given the following trends and pressures?

Three bodies of theory (social science, political science, and new science theories) have been applied in this paper to four disparate futures scenarios to study societal change, draw implications about ensuing fields of contention and conflict, and to propose civil-military responses. Potentially irrevocable seeds of change have already been planted and are sprouting into something new. The Information Age has unleashed the shackles of science and erased the boundaries between previously accepted and comfortably distinct disciplines. Netted information empowers individuals everywhere to defy conventions, reinterpret reality, and unlock complex mysteries. Despite the comparisons offered by skeptics and historians, people everywhere seem intuitively to believe that humanity stands on the brink of a period of unrivaled change and discovery.

Peering back from the alternative futures horizon, the following trends and similarities consistently emerge from the fray:

1. Global will win over local. At every level, those who stand to lose power and exclusive knowledge will resist change. Against their free will and better judgement, most will transform to accommodate a global economics perspective.¹⁸ This will necessarily relegate their businesses and institutions to a state of uncomfortable inclusion, a breathless pace of relentless competition, and a mixed sense of excitement and vulnerability. There will be severe ethical and moral quandaries as economic competition is played ruthlessly on a global scale.¹⁹ Without global laws, courts, and representation, players will have to decide which practices to follow while realizing that there will always be others who will exploit the areas deemed illegal, immoral, or unethical.

2. The state will represent and include diverse societies everywhere. The Information Age permits people to identify with social groups that are not necessarily in the same geographic place. The network, as Michael Vlahos calls this "new venue for human interaction," allows people to congregate in virtual cities and societies that transcend physical geography. The network, in fact, according to Vlahos, will become "primary human geography."²⁰ Freedom from the bonds of geographical and local constraints stands to cleave the relationship between nations and states.

¹⁸ "Every state must choose between participation in the globalized economy or persistent poverty. Participation means that the state—not just businesses within a state, but the government itself—must follow certain rules of behavior, including things like limiting corruption and making budgeting and finances transparent." Metz, 7.

¹⁹ "Goodbye, communists versus capitalists. Hello, free-market democracies versus free-market kleptocrats." Friedman, 155.

²⁰ For a complete discussion of the network, read "The Network and the Navy", a forthcoming (unpublished) paper by Michael Vlahos.

3. There will be greater disparity between the "haves" and "have-nots."

Access to information technologies will be the prerequisite and key enabler for individuals, organizations, and nations to seize economic and political opportunities. This will not be true for everyone, everywhere. The "haves," who will be competing at breakneck speed in virtual markets, societies, and intellectual debates, will leave those without the means or opportunity to participate, the "have-nots," farther and farther behind. Despite the marketing pressures, desires, and humanitarian attempts to include the "have-nots," the pace of change will be too much for those who are already entering the Information Age at a societal disadvantage. Although technology will proliferate worldwide, technologies alone will not be enough to empower and educate many disadvantaged individuals, organizations, and national entities. Among other things, education takes time and will—two key variables that work against each other in busy worlds.

4. There will arise an emissary class. To accommodate for these disparities, organizations and nations will rely upon an assortment of cultural emissaries. These emissaries, or intermediaries, will thrive at the societal fringes. They will be needed to translate "the rules of the game" between agents, agencies, and worlds.

5. There will be more opportunities for discontinuous social evolution. While many societies will be left behind in the confusion of the Information Age, there will be those who skip the various stages and norms of social evolution to arrive on the world scene as bona fide, capable actors. Economic opportunities will lie

in the virtual markets, and if recent history is an indication of what lies ahead, then many of the poor will become rich in a relatively short period of time.

6. Exclusionary biases will not last. Even though there will be a pressure and business logic to include everyone in the global economy, individuals, societies, and national governments will try to exclude particular individuals and groups. These exclusionary biases will not last because information defies boundaries and the network will find a way to conduct business, share ideas, and influence global conscience or perceptions. Once the network is in place, it will be very hard—if not impossible—to isolate parts of it from the rest.

E. RECOMMENDATIONS

Despite extensive civil-military blurring, recommendations drawn from the analysis of FCWG alternative futures are broken down into two basic sets, some for the government at large, others for the military in particular. The United States government appears to be exercising damage control mechanisms in response to the perturbation and chaos, rather than taking an opportunistic and optimistic perspective of the future.²¹ Such a philosophy seems warranted given the pace of change and mythological empowerment of citizens in the Information Age. Having overcome tremendous trials and tribulations to arrive at the enviable mantel of world leader, America must now look ahead in order to

²¹ "We have been sometimes accused, and we have indicted ourselves, for having blindly followed the precept that. 'Just don't stand there, do something.' We have replaced that with a doctrine of 'Don't do anything. Just stand there and deliberate about he exit.' That is our doctrine, and I submit to you that the concept of 'exit strategy' epitomizes a posture which is incompatible with the dilemmas that we confront on the world scene, and the kind of leadership we have to find." Brzezinski, p. 1 of 6.

develop a compelling vision and sustainable ideology.²² Perhaps the present-day American myth can endure the divergent economic, technological, and political pressures that consort with Information Age societies—but today a betting man would not assume so. In light of this reality, there are innumerable options that merit serious consideration by decision-makers, the informed and the effective publics.²³ Some—not all—suggestions follow:

1. Do not take American ideology for granted—tend to the American myth. There must be more to being an American than free-market capitalism, democracy, and the Bill of Rights.²⁴ Long-term prosperity and peace will erode national identity and invites societal mediocrity. Nonetheless, there will be plenty

²² "Some have hoped that changes in the awareness and purpose, in the organization and ideology, of states would change the quality of international life. Over the centuries states have changed in many ways, but the quality of international life has remained much the same...States facing global problems are like individual consumers trapped by the 'tyranny of small decisions.'" Kenneth N. Waltz, *Theory of International Politics* (New York: McGraw-Hill, Inc., 1979), 110.

²³ For distinctions among the various foreign policy publics, see: Donald M. Snow and Eugene Brown, "Outside Influences II: The Public and the Media," Air War College Regional Studies Book 2, 10th Ed, Lesson 21 (Maxwell AFB, Alabama, Air University, November 1999), 195.

²⁴ Friedman cleverly articulates the character and constraints of the free-market: "There can be different brands of free-market vanilla and you can adjust your society to it by going faster or slower. But, in the end, if you want higher standards of living in a world without walls, the free-market is the only ideological alternative left. One road. Different speeds. But one road. When your country recognizes this fact, when it recognizes the rules of the free market in today's global economy, and decides to abide by them, it puts on what I call the Golden Straitjacket." Friedman, 104. He goes on to explain his Golden Straitjacket metaphor: "To fit into the Golden Straitjacket a country must either adopt, or be seen as moving toward, the following golden rules: making the private sector the primary engine of its economic growth, maintaining a low rate of inflation and price stability, shrinking the size of its state bureaucracy, maintaining as close to a balanced budget as possible, if not a surplus, eliminating and lowering tariffs on imported goods, removing restrictions on foreign investment, getting rid of quotas and domestic monopolies, increasing exports, privatizing state-owned industries and utilities, deregulating capital markets, making its currency convertible, opening its industries, stock and bond markets to direct foreign ownership and investment, deregulating its economy to promote as much domestic competition as possible, eliminating government corruption, subsidies and kickbacks as much as possible, opening its banking and telecommunications systems to private ownership and competition and allowing its citizens to choose from an array of competing pension options and foreign-run pension and mutual funds. When you stitch all of these pieces together you have the Golden Straitjacket." Friedman, 105.

of opportunities for Americans to band together in order to overcome worldwide adversity. Freedom does not mean, “abolish the standards.” Americans need standards—something to rally around and measure ourselves against as we ride the waves of change...together. Government leaders should consider the merits and details of a national teambuilding campaign.

2. Recognize schizophrenic national policies that turn away the tired and hungry huddled masses that flock to our land of opportunity. Diversity has long been America’s strength. The answer may lie in mandatory government duty for all (to include education and indoctrination) as a prerequisite for citizenship and services. This challenge is to get Americans to take ownership of a sustainable national ideology, regardless of race, creed, color, or national origin.

3. Considering the widespread potential for deception campaigns, the government must accept the role of truth-teller.²⁵ This role will require a proactive posture and apolitical information campaigns. The perception of information control or political spin erodes trust and the public’s faith in such an undertaking.²⁶ While some may argue that this is the purview of the press, the government, by contrast, will not be in the business of selling news.

²⁵ "The Achilles heel in any information system is the extent to which it can be spoofed—a constant throughout military history." Arquilla, 214.

²⁶ "There is a story that in the 1980s the Soviets once ran a picture in Pravda illustrating breadlines in America. Upon closer examination it turned out that the picture was of a group of people in Manhattan waiting in line for Zabar's bakery and delicatessen to open on a Saturday morning. Don't try that trick today—even in China. Not with the Internet around. What makes the Internet so dangerous for police states is that they can't afford not to have it, because they will fall behind economically if they do. But if they have it, it means they simply can't control information the way they once did. And what's really scary about the Internet for regimes like China's is that it's interactive, it's alive. It's not just a radio, where you listen passively. It's not just a television where you watch like a couch potato. On the Internet people are giving and taking, chatting and outreaching, uploading

4. Representatives of the government must be available and responsive to public needs at all times. This necessitates abandoning the “good enough for government work” mindset, adopting round-the-clock work schedules, accepting virtual governance, relaxing hierarchical processes and industrial-era conformity methods, and institutionalizing innovative change agents.

5. National and local taxation will become a contentious issue. As people purchase more worldwide goods and services, the taxes must adapt. This new tax policy will require a fair and equitable plan that considers the transient character of future societies without unfairly burdening those who stay put long enough to pick up the tab.

6. Although the government officials deserve praise for protecting the rights and liberties of Americans to date, the proliferation of weapons of mass destruction and weapons of mass effect may justify new laws, enforcement methods, and jurisdiction considerations. Criminals and other national adversaries will continue to exploit artificially imposed boundaries and turf differences. How much exploitation will American tolerate in the future before they resort to other means of protection to include private armies and vigilantes?

7. The Information Age makes governance harder and more complex. Constituents can contrast and compare societies and, consequently raise their expectations. Considering the increased transparency of future operations, everyone should realize that perceptions matter—and they will change faster and

ideologies and downloading ideologies, buying and selling—and doing it all in a way that is virtually impossible to control.” Friedman, 68.

more often than in previous times. Perception-management, therefore, cannot be ignored, delegated, or underestimated.

The next series of strategic recommendations are aimed at the military. Today the U.S. military supports a principally economic national security strategy of engagement and enlargement—engage globally and enlarge the opportunities for American businesses. The current national military strategy can be summarized in the mandate: shape the world, respond to crises, and prepare for the ultimate challenges. In the future these strategies will probably remain relevant and useful. They will, however, require qualitative reinterpretation and operational honing.

1. Seek to understand and synchronize information operations to accommodate unbounded and cluttered battlefields, for lack of a better term. In the Information Age, the whole world constitutes the “battlefield”. Current doctrinal labels and categories oversimplify the culture and behavior of future adversaries. Future battles will require more detailed knowledge about adversaries at every level to include individuals. The key to relevant military power will lie in a new class of precision effects—discriminating weapons aimed at empowered individuals.²⁷ Interdependent business entities and the worldwide gallery will not tolerate military bluntness.²⁸ The world will sit in judgement as the

²⁷ The notion of discriminating weapons is an idea that was inspired by the firefights in Mogadishu, Somalia. Many of those who challenged American servicemen used noncombatants as sniper shields. Discriminating weapons could provide the capability to dial-a-kill (from nonlethal to lethal) or effect (precision or area) by combining directed energy or other agile sources of ammunition. The bio-tech revolution also offers possibilities for DNA targeting.

²⁸ “Approximately 95 percent of all military communications are routed through commercial lines.” Arquilla, 178.

Information Age shows them how, when, where, and to what extent force is applied in the name of national interest.²⁹ Military force needs to punctuate carefully crafted national paragraphs.³⁰ Conflict and competition will be continuous, relentless, and worldwide. In this sense, responding to crises in today's typical ways would be inadequate, irrelevant, and archaic.

2. Shaping takes on a greater significance, requiring strategic-minded forces with a far greater appreciation for the consequences of "flawed or missing punctuation." Such forces will probably not be as homogenous as the military is today.³¹ Smaller, more capable teams will be justified. This means joint, coalition, and interagency blending at the lowest levels. Reach-back via the network will allow greater tooth-to-tail ratios and analysis support from afar.

3. The military must prioritize education and encourage extended careers. Tremendous investment will be required in the humans who will be asked to make difficult moral and ethical decisions in complex and dangerous environments. The institution must recognize, reward, and retain individuals for skills and judgement that cannot be mass-produced.

4. The gap between the "haves" and "have-nots" is widening. Although national security may not be at stake, count on intrastate conflict to flourish and

²⁹ "Force is more useful than ever for maintaining the status quo, though not for changing it, and maintaining the status quo is the minimum goal of any great power." Waltz, 191.

³⁰ Thanks to GEN Peter J. Schoomaker, USCINCSOC, for this perspective on information and the military.

³¹ "The trend in the commercial world has been toward a blurring between management and staff. If this is extrapolated to the military, it might be necessary to consider whether the division of a service into enlisted personnel and commissioned officers makes sense in the 21st century. After all, this distinction arose to reflect the schism between commoners and aristocrats during the birth of modern militaries. Since societies are no longer organized that way, perhaps militaries should abandon the split between aristocrats and commoners." Metz, 94.

command military resolution. The need for emissaries is clear to work the middle ground throughout the conflict continuum. Conflict prevention measures involving emissaries and aid programs will prove to be bargains as the cost of national warfare rises in the future.

Used together, the alternative futures in conjunction with complimentary theories—new and old, result in a rather provocative backdrop for planning, re-perceiving, and posing endless “what if” questions. The pages that follow amplify this study’s theoretical foundation, explain the rationale behind alternative futures, and then apply original analysis to support resulting policy and strategy recommendations. Is this a reasonable approach? Consider this quote from George Bernard Shaw: “The reasonable man adapts to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends upon the unreasonable man.”³²

³² Holman, 25.

II. THEORY

A. OVERVIEW

Analyzing change for the future requires an extensive theoretical foundation for which there is no shortage. After all, most scientific theories seek to explain life's mysteries, and many offer insights about change, societies, and sources of conflict. This problem demands theoretical perspectives that allow for cross-disciplinary analysis and learning. Normally for such a study, one would immediately turn to the "soft" sciences, but recent revelations in the "hard" sciences pertaining to chaos and quantum physics have begun to blur such traditional distinctions. The challenge is to choose carefully from the various lenses or perspectives to adequately frame the problem without foreshadowing the conclusions. Similarly faced with the dilemma of constructing or choosing a "superstory"³³ with which to bring purpose and order to complex perceptions, James Rosenau wrote:

The first obstacle to adopting a complexity perspective is to recognize that inevitably we operate within some kind of theory. It is sheer myth to believe that we need merely observe the circumstances of a situation in order to understand them. Facts do not speak for themselves; observers give them voice by sorting out those that are irrelevant and, in doing so, they bring theoretical perspective to bear...Theory provides guidelines; it sensitizes observers to alternative possibilities; it highlights where levers might be pulled and influence yielded; it links ends to means and strategies to resources; and perhaps most of all, it infuses context and pattern into a welter of seemingly disarrayed and unrelated phenomena...Understanding and not predicting is the task of theory.³⁴

³³ "What would be the lens, the perspective, the organizing system—the superstory—through which I would look at the world, make sense of events, prioritize them, opine upon them and help readers understand them?" Friedman, 68.

³⁴ Rosenau, 8.

The basis of the futures superstory will be individuals interacting with other people, within their organizations and societies. For this perspective the social sciences have much to offer, including organization and information theories. Turning to look at change from a higher level, political science contributes methods for understanding nation-state behavior, games, and challenges. Finally, breaking from Newtonian beliefs, new science provides the means for investigating the nonlinear, chaotic setting that is the superstory. These three bodies of analytical literature, social science, political science, and new science, add rigor to the alternate futures analysis.

A contemporary and enigmatic theme that is woven throughout this report involves the so called "Information Age," a popular label for the informational feeding frenzy that fuels uncertainty about what tomorrow might bring. The Information Age appears to be instrumental in moving many of the theoretical underpinnings upon which societies and individuals interpret reality, find solace, and give meaning to their lives. Clearly, information sharing is having profound, and often unintended, effects upon societies throughout the world. Some would say that information has always been shared within and between societies—this is nothing new. However, the accelerated pace and grand breadth of information exchange is arguably beyond comprehension and certainly out of control. With so much information to choose from, each day it becomes harder to determine what is real, right, and relevant to peoples' lives. Others would argue that the manner in which unfiltered information is infiltrating closed societies and changing perceptions is the more important agitator. The next section contains

more about the role of information with respect to individuals and organizations, but these days the role of information weighs upon every theory or disciplined way of thinking.³⁵

B. SOCIAL SCIENCE

Social science is especially suitable since it attempts to make descriptive and causal inferences about the world.³⁶ Although many theories fall under the social sciences category, two mental constructs offer analytical rigor while still allowing for desirable, unexpected leaps of understanding. Organizational behavior theory is the first mental model; the other is information theory.

1. Organization Theory

Graham T. Allison explains his handy trio of organizational behavior models (Models I, II, and III) in the following story:

Imagine a chess game in which the observer can see only a screen upon which moves in the game are projected, with no information about how the pieces came to be moved. Initially, most observers would assume—as Model I does—that an individual chess player was moving the pieces with reference to plans and tactics toward the goal of winning the game. But a pattern of moves can be imagined that would lead some observers, after watching several games, to consider a Model II assumption: the chess player might not be a single individual but rather a loose alliance of semi-independent organizations, each of which moved its set of pieces according to standard operating procedures...repeatedly attacking the opponent according to a fixed plan. It is conceivable, furthermore, that the pattern of play might suggest to an observer a Model III assumption: a number of distinct players, with distinct objectives but shared power over

³⁵ In light of the ever-changing and pervasive nature of the Information Age, readers should continue to ask with respect to all theories and disciplined way of thinking: what's the same...what's different?

³⁶ For more about the strengths and weaknesses of social science inquiry read: Gary King, Robert O. Keohane, and Sidney Verba, *Designing Social Inquiry: Scientific Inference in Qualitative Research* (Princeton, New Jersey, Princeton University Press, 1994), 7.

the pieces, could be determining the moves as a resultant of collegial bargaining.³⁷

Model I describes the classical, "Rational Actor" outlook which views individuals, organizations, and nations as black boxes—rational behavior is assumed and "motivated by a conscious calculation of advantages, a calculation that in turn is based on an explicit and internally consistent value system."³⁸ Opening the black box, Allison offers two more paradigms: Models II and III. Model II is the Organizational Process Model and Model III he calls the Governmental (Bureaucratic) Politics Model. When used together, the two models go a long way towards explaining why organizations behave the way they do.

Model II, the Organizational Process Model, declares that a government perceives problems through organizational sensors. "Governments define alternatives and estimate consequences as their component organizations process information; governments act as these organizations enact routines."³⁹ Allison says organizations are no more homogenous than solids—all parts are not equally flexible—and consequently expand, contract, and react only under certain conditions. The specific conditions are largely a function of perceptions and parochial priorities.

Model II highlights the effects of "bounded rationality" in organizational behavior. Faced with complex problems, organizations will parcel out various

³⁷ Graham T. Allison, *Essence of Decision: Explaining the Cuban Missile Crisis* (Massachusetts: Harper Collins Publishers, 1971), 7.

³⁸ Allison, 13.

³⁹ Allison, 67. The *standard*, repetitive and predictive patterns of organizational behavior are what make this model most powerful.

pieces of the problem, thereby fractionating power. "Good-enough" choices emerge from the conflicting pressures to maintain the smooth status quo while satisfying the customers.⁴⁰ Avoiding uncertainty overrides the need to develop long-range strategies, so organizations will spend most of their time "stomping out fires" in lieu of taking risks as part of a grander schema for purposeful change. Solutions to irregular problems are often a function of limited organizational repertoires, inevitably restricting options to off-the-shelf standard operations procedures (SOPs), established programs, and other solutions bounded by perceptions of administrative feasibility. For the most part "change is bad" in organizations.

Model III, the Governmental Politics Model, goes a step further than the Model II analysis by recognizing that the leaders on top of these organizations are not a monolithic group—leaders matter. The fundamental truths offered by Model III are that the power and skill of the individual, political actors are incisive in understanding a particular organization's behavior. This model, according to Allison:

...[S]ees no unitary actor but rather many actors as players—players who focus not on a single strategic issue but on many diverse intra-national problems as well; players who act in terms of no consistent set of strategic objectives but rather according to various conceptions of national, organizational, and personal goals; players who make government decisions not by a single, rational choice but by the pulling and hauling that is politics.⁴¹

In accordance with the Model III approach, organizational behavior is a function of games and players, coalitions, bargains, compromises, and state of

⁴⁰ Allison uses the term "satisficing" to describe "good enough" choices. Allison. 72.

⁴¹ Allison, 144.

confusion. Besides individual choices, the collage includes the results of minor games, central games, and foul-ups. Minor games include administrative deadlines and “wordsmithing” exercises. “Make a decision—we can change it later if we have to,” or “We need to word this directive to leave room for other options down the road.” Central games include the doling out of individual project assignments among lower-level players. Reputation and parochial priorities make a difference. Where a player stands on a particular issue depends largely upon where he sits.⁴² This is the basis of the argument that above all, an organization’s primary function is to ensure it survives and individuals maintain their power base. Bevin Alexander used this central game argument to explain state behavior: “History shows that nations, like individuals, react selfishly and often violently to straitened economic or social conditions. In hard times they seldom work in concert to achieve a general solution for everyone, but strive feverishly for national, or personal, salvation.”⁴³ Finally, foul-ups are choices made because they were not recognized or surfaced too late. The “mis-es” enter into play—misperception, misexpectation, and miscommunication.

2. Information Theory

Allison’s three models explain a lot about organizational behavior, but there is more to the story. This is the task of information theory—to help people understand the nuances of messages, medium, context, logic, and societies.

⁴² James Q. Wilson talks about this in his excellent book, *Bureaucracy: What Government Agencies Do and Why They Do It* (New York: Basic Books, Inc., Publishers, 1989), 68.

⁴³ Bevin Alexander, *The Future of Warfare* (New York: W.W. Norton & Company, Inc., 1995), 20.

While declaring, "Information is still the tool for-all tasks,"⁴⁴ Brown and Duguid underscore the crucial aspects of social context and humanity. They warn:

If only a logic of information, rather than the logic of humanity, is taken into account, then all these other aspects [variables involving people, in their communities, organizations, and institutions—they ultimately decide what information means and why it matters] remain invisible. And futurists, while raging against the illogic of humankind and the primitive references that lead it astray, will continue to tell us where we ought to go. By taking more account of people and a little less of information, they might instead tell us where we are going, which would be more difficult but also more helpful.⁴⁵

In order to place information in a human, social context, what exactly is information? RAND analysts, John Arquilla and David Ronfeldt, offer three general views of information contained in discussions about the information revolution and its implications: "Each view approaches the concept differently; each harbors a different perspective of what is important. Two views are widespread: The first considers information in terms of the inherent message, the second in terms of the medium of production, storage, transmission, and reception. The emerging third view transcends the former two; it speculates that information may be a physical property—as physical as mass and energy, and inherent in all matter."⁴⁶ Mike Vlahos and Dale Pace resist the tendency to pigeon hole information with terms from common vernacular by offering a fourth view which combines message, medium, and property into a new place, a place without geography—the Infosphere. "The Infosphere is a shorthand for the fusion of all the world's communications networks, databases, and sources of

⁴⁴ John Seely Brown and Paul Duguid, *The Social Life of Information* (Boston, Massachusetts: Harvard Business School Press, 2000), 14.

⁴⁵ Brown, 19.

⁴⁶ Arquilla, 144.

information into a vast, intertwined, and heterogeneous tapestry of electronic interchange."⁴⁷

Vlahos and Pace describe the Infosphere as the creation of a new human social environment in which people gather to do business, communicate, see sanctuary, and create subcultures. They believe that the social inhabitation of the Infosphere is producing big changes in the industrial-era ethos. Comparing contemporary change to the industrial big change, they predict: "What happened then—and what should happen now—is that micro-behaviors, values, and norms established and ratified in business enterprise will aggregate and become in time the explicit basis for the value system of the larger society."⁴⁸ To reiterate, information can be viewed as a message, medium, physical property, or as a congregation in a new place.⁴⁹

As difficult as it is to understand what information is, there are other arguable distinctions between the ingredients that make up information—data, and the human embodiment of information—knowledge. Thomas Davenport and Laurence Prusak distinguish between shades of data, information, and knowledge in their business writings:

⁴⁷ Michael Vlahos and Dale Pace, *The Navy and the Infosphere* (Laurel, Maryland: Johns Hopkins Applied Physics Laboratory, JWR-99-002, March 1999), 1.

⁴⁸ Vlahos, *The Navy and the Infosphere*, 7. The authors sum up the Infosphere social norms, values, and behaviors as: 1) team—based on flexibility, openness, and less hierarchy, 2) task—characterized by organizational fluidity, responsiveness, and cross-enterprise requirements, and 3) trust—work relationships based on shared value code.

⁴⁹ "For several decades, information theory has treated information as something tangible. Information has been referred to as a quantity, bits and bytes to be counted, transmitted, received, and stored. Information is a commodity that we can transfer from one place to another. We maintain this commodity focus even now when we evaluate the connectivity of a transmission line, or a computer's capacity, by calculating how much information it can hold. This strong focus on the 'thingness' of information has kept us from contemplating its

Data is a set of discrete, objective facts-about events...*Information* [on the other hand] is meant to change the way the receiver perceives something, to have an impact on his judgement and behavior. It must inform; it's data that makes a difference. The word, 'inform' originally meant, 'to give shape to' and information is meant to shape the person who gets it, to make some difference in his outlook or insight. Strictly speaking, then, it follows that the receiver, not the sender, decides whether the message he gets is really information—that is, if it truly informs him...*Knowledge* is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. Knowledge derives from minds at work. If information is to become knowledge, humans must do virtually all the work: [comparison, consequences, connections, and conversation] (emphasis added).⁵⁰

Information theory, then, by repeatedly emphasizing the importance of the social periphery, requires analysts to look beyond info-centricity to understand the ramifications of the Information Age—it says the answers dwell in the communities, organizations, and institutions that frame human activities.⁵¹ Brown and Duguid argue in their new book, *The Social Life of Information*:

Ignoring the clues that lie beyond information doesn't only lead to a narrow world of deception. It leads to a world of what we think of as tunnel design—a kind of purblind design of which, in the end, we are all victims. In this world we are often expected to live on a strict information-only diet. Indeed, it's a world that usually addresses worries about information by simply offering more. Yet when only information is on offer, more often means less.⁵²

other dimensions: the content, character, and behavior of information (Gleick 1987, 255-56)...” Wheatley, 94.

⁵⁰ Thomas H. Davenport and Laurence Prusak, *Working Knowledge: How Organizations Manage What They Know* (Boston, Massachusetts: Harvard Business School Press, 1998), 2-6.

⁵¹ Brown, 5.

⁵² Brown, 2-3.

C. POLITICAL SCIENCE

The suggested unit or level of analysis in the previous social science section panned out from individuals, to organizations, to societies. This section further expands the conceptual mindset to incorporate and rationalize nation-state behavior. Why is the state so central to political science theories? Kenneth Waltz writes in his comprehensive book, *Theory of International Politics*:

To say that major states maintain their central importance is not to say that other actors of some importance do not exist. The "state-centric" phrase suggests something about the system's structure. Transnational movements are among the processes that go within it. That the state-centric view is so often questioned merely reflects the difficulty political scientists have in keeping the distinction between structures and processes clearly and constantly in mind.⁵³

1. Rational Actors

Allison's three models can also be used to explain the predominant basis for the major political science perspectives. In this case, the difference between organization theory and political science is in higher level of analysis. Political scientists focus on state behavior. Model I, views states as black boxes—rational actors characterized by "more or less purposive acts of unified national governments."⁵⁴ The rational actor frame views state behavior as a matter of its pursuit of *goals and objectives*, its logical differentiation between various *alternatives*, weighing of *consequences* that follow from the choice of each alternative, and *choice* based on highest perceived payoff.⁵⁵ Allison's other two models explain state behavior as a matter of organizational processes (Model II)

⁵³ "States are the units whose interactions form the structure of international political systems. They will long remain so. The death rate among states is remarkably low. Few states die; many firms do." Waltz, 95.

⁵⁴ Allison, 4-5.

versus the political actions of many players (Model III). The three models do a great job of consolidating many different political science views, however there are still other views that the models do not fittingly subsume.

2. Structural Realism

There are those who see geopolitics as a consequence of structure or constraining conditions. A structure is defined by the arrangement or ordering of its parts. Waltz explains:

Structure is not a collection of political institutions but rather the arrangement of them. How is arrangement defined? The constitution of a state describes some parts of the arrangement, but political structures as they develop are not identical with formal constitutions. In defining structures, the first question to answer is this: What is the principle by which parts are arranged?⁵⁶

When viewed as contributors to the behavior of a greater international whole, state conduct can also be considered within the context of a system. This system is composed of a structure and of interacting parts.⁵⁷ Political analysts often find it difficult to distinguish changes of system structures from changes within them.⁵⁸

⁵⁵ Allison, 29-30.

⁵⁶ Waltz, 80-81.

⁵⁷ Waltz, 80.

⁵⁸ Waltz explains more about these systemic distinctions: "If one is concerned with the different expected effects of different systems, one must be able to distinguish changes of systems from changes within them, something that would-be systems theorists have found exceedingly difficult to do. A three-part definition of structure enables one to discriminate between those types of changes:

- Structures are defined, first, according to the principle by which a system is ordered. Systems are transformed if one ordering principle replaces another. To move from an anarchic to a hierarchic realm is to move from one system to another.

- Structures are defined, second, by the specification of functions of differentiated units. Hierarchic systems change if functions are differently defined and allotted. For anarchic systems, the criterion of systems change derived from the second part of the definition drops out since the system is composed of like units.

3. Systems and Balance-of-Power

The next level of analysis is known among political scientists as the systems-level approach. Morton A. Kaplan⁵⁹ studied nineteenth century systems to derive the following essential balance-of-power system rules (or guidelines for state action):

- 1) Act to increase capabilities but negotiate rather than fight.
- 2) Fight rather than pass up an opportunity to increase capabilities.
- 3) Stop fighting rather than eliminate an essential national actor.
- 4) Act to oppose any coalition or single actor, which tends to assume a position of predominance with respect to the rest of the system.
- 5) Act to constrain actors who subscribe to supranational organizing principles.
- 6) Permit defeated or constrained essential national actors to re-enter the system as acceptable role partners or act to bring some previously inessential actor within the essential actor classification. Treat all essential actors as acceptable role partners.⁶⁰

The balance-of-power perspective of the international system explains the political behavior of its national actors (or variables) as a sort of balanced equation where the variables vary at the expense of others, but the power aggregate remains constant. As Waltz explains: "The expectation is not that a balance, once achieved, will be maintained, but that a balance, once disrupted, will be restored in one way or another."⁶¹ Kaplan's balance-of-power system is but one of six international systems that he identified.⁶² Each system was described by five variables: "the essential rules of the system, the transformation

- Structures are defined, third, by the distribution of capabilities across units. Changes in this distribution are changes of system whether the system be an anarchic or a hierarchic one." See Waltz, 100-101.

⁵⁹ Morton A. Kaplan, *System and Process in International Politics* (New York: Wiley, 1964)

⁶⁰ Waltz, 51.

⁶¹ Waltz, 128.

⁶² "Kaplan examines six systems: namely, balance of power, loose bipolar, tight bipolar, unit veto, universal, and hierarchic." Ibid, 51.

rules, the actor classificatory variables, the capability variables, and the information variables."⁶³

At the systems-level of analysis, complexity creeps in with the methodological caveats. That is why political scientists prefer and defend reductionist methods.

Waltz writes:

Internationally, different states have produced similar as well as different outcomes, and similar states have produced different as well as similar outcomes. The same causes sometimes lead to different effects, and the same effects sometimes follow from different causes. We are led to suspect that reductionist explanations of international politics are insufficient and that analytic approaches must give way to systemic ones.⁶⁴

4. Globalism

Quite different than the realist school, which is founded upon the belief that everything in geopolitics can be explained as the quest for power and geopolitical advantage—and economic markets don't really matter, is the globalist school.

Thomas Friedman argues in his book, *The Lexus and the Olive Tree*—globalism is the new paradigm for the international order that characterizes the post-Cold

War world:

The globalization system by contrast (to the Cold War world—balanced at the center by the United States and the Soviet Union) is built around three balances, which overlap and affect one another. The first is the traditional balance between nation-states...The second balance in the globalization system is between nation-states and global markets⁶⁵...The third balance that you have to pay attention to in the globalization system—the one that

⁶³ Kaplan, 9.

⁶⁴ "The failure of some reductionist approaches does not, however, prove that other reductionist approaches would not succeed." Waltz, 36-37.

⁶⁵ "These global markets are made up of millions of investors moving money around the world with a click of the mouse. I call them 'the Electronic Herd' and this herd gathers in key global financial centers, such as Wall Street, Hong Kong, London and Frankfurt, which I call 'the Supermarkets.'" Friedman, 13.

is really newest of all—is the balance between individuals and nation-states.⁶⁶

The two “new” key factors that Friedman introduces in his globalist perspective are the considerable effects that perceived state behavior could have upon global markets and therefore upon a particular state’s economy and, due the power of the worldwide web, the power of individuals with respect to nations. Unfettered access to the web and the media bring individuals on par with many states. As Friedman points out: “Jody Williams won the Nobel Peace Prize in 1997 for her contribution to the international ban on landmines. She achieved that ban not only without much government help, but in the face of opposition from all the major powers...her secret weapon?...’E-mail.’”⁶⁷

The flames of Globalism, fanned brighter each day by underestimated and misunderstood interconnectedness—the Infosphere—appears to bring a new logic to the international environment. Michael Mazaar calls this new logic the knowledge era, saying:

It is global and local in scope at the same time—global in its reach, local in its focus, a paradox symbolized by multinational corporations with activities all over the world who nonetheless tailor their products to niche markets within individual countries. It is world in which finance becomes more powerful than ever, challenging national central banks and international multilateral development banks for influence. It is an era in which old authorities are challenged and decay, and new or changed ones arise to take their place.⁶⁸

⁶⁶ Friedman, 13-14.

⁶⁷ Friedman, 14.

⁶⁸ Michael J. Mazarr, “Chaos Theory and U.S. Military Strategy: A ‘Leapfrog Strategy for U.S. Defense Policy” A paper presented at the Conference on Complexity, Global Politics, and National Security, sponsored by the National Defense University and RAND Corporation, (Washington, D.C., November 13, 1996); available from <http://www.ndu.edu/ndu/inss/books/complexity/ch11.html>; accessed 10 August 2000, p. 2 of 9.

Realists are not convinced that this is a new phenomenon. They say interconnectedness is a transitory condition for states, and therefore not a factor upon which we should place undue emphasis. Waltz explains: "No matter how one turns it, the same answer comes up: We depend somewhat on the external world, and most countries depend on the external world much more so. Countries that are dependent on others in important respects work to limit or lessen their dependence if they can reasonably hope to do so."⁶⁹

The preeminent power of global economics to shape and determine state behavior has long been debated among political scientists. Waltz's attempts to debunk most economic-based views when he writes:

Theories that make such assertions also contain, at least implicitly, the wider assertion that there are no good international-political reasons for the conflict and the warring of states. The reasons for war, as for imperialism, are located within some, or within all, of the states. But if the causes were cured, would the symptoms disappear? One can hardly believe that they would. Though economic theories assign specific causes of war, we know that all sorts of states with every imaginable variation of economic and social institution and of political ideology have fought wars.⁷⁰

Perhaps structural realists would also say that individuals could always make a difference in the world in some way, so the power of e-mail is simply a new, faster method of affecting public opinion. But when all is said and done, political scientists may argue, the state did not fail—at worst, its power eroded a bit at the margins.⁷¹ States still matter most because among other things, they control

⁶⁹ Waltz, 154.

⁷⁰ Waltz, 36-37.

⁷¹ Assistant Secretary for International Affairs, Honorable Frank Kramer, recently posited an alternate view for the apparent decline of the nation-state. He argued that the nation-state is experiencing a period of *relative* decline. The nation-state is still preeminent, but now individuals, sub-national and supranational actors are more powerful than they ever were

territory, represent peoples, tax and spend public monies, enforce the laws of the land, provide medical care and services, and safeguard national ideology.

Where might the logic of globalism be taking us?⁷² Globalists, idealists, and others who see interconnectedness as the prerequisite for a utopian, global government, would say that nation-states are witnessing much more than marginal erosion of their powers—they should prepare to be assimilated. The structural realists would say that a global government would never work and if somehow attained, would be far from utopia. In fact, Waltz thinks world government would incite worldwide civil war:

As hierarchical systems, governments nationally or globally are disrupted by the defection of major parts. In a society of states with little coherence, attempts at world government would founder on the inability of an emerging central authority to mobilize the resources needed to create and maintain the unity of the system by regulating and managing its parts. The prospect of world government would be an invitation to prepare for world civil war.⁷³

Yet, even the realists see the compelling reasons for state interests to be subordinated, bounded, or changed. The impetus of this paradox, according to Waltz: "The four p's—pollution, poverty, population, and proliferation—pose problems so pressing that national interest must be subordinated to collective need."⁷⁴

This section began with a review of Allison's three models: the rational actor approach (Model I), the organizational process view (Model II), and the

before. It is not that the nation-state is weakening, necessarily—it is just that the other actors are gaining strength on the political scene.

⁷² Robert Hormats, the vice-chairman of Goldman Sachs International, observed: "To understand and then to explain globalization it is useful to think of yourself as an intellectual nomad. In the world of the nomad, there is no carefully defined turf..." Friedman, 27.

⁷³ Waltz, 111.

bureaucratic politics outlook (Model III). The structural realist perspective came next, arguing that structure establishes "constraining conditions" which, in turn, limit and guide a state's behavior. Then, the political context widened to examine geopolitical systems effects, focusing on the balance-of power systems approach. Finally, political science introduced the proposition that the world is in a new era of globalism, a setting that changes what matters to political scientists because there are infinitely more actors in the system—and they all do not look and act like states.

D. NEW SCIENCE

New science offers the intellectual tools for macro-level analysis. These tools acknowledge and depend upon the existence of complexity, chaos, and non-linear events. New science expresses a holistic perspective, which combines chaos theory, quantum physics, and self-organizing systems in an paradoxical effort to recognize order within disorder, acknowledge matter that is immaterial, and to find stability through disequilibrium.⁷⁴ New science bridges the divide between the "hard" and "soft" sciences, then goes beyond many more of the boundaries that separate traditional scientific and nonscientific disciplines.

Margaret Wheatley pits warning against reasoning, saying: "Some believe that there is a danger in playing with science and abstracting its metaphors because, after a certain amount of stretch, the metaphors lose their relationship to the tight scientific theories that gave rise to them. But others would argue that all science is a metaphor, a hypothetical description of how to think of a reality we can never

⁷⁴ Waltz, 139.

fully know."⁷⁶ New science is intriguing and powerful because, as Friedman points out: "Today, more than ever, the traditional boundaries between politics, culture, technology, finance, national security and ecology are disappearing. You often cannot explain one without referring to the others, and you cannot explain the whole without reference to them all."⁷⁷ New science comes to us at a time when traditional political science seems to lack relevancy. Writes Rosenau:

...[T]oday we still do not have ways of talking about the diminished role of states without at the same time privileging them as superior to all other actors in the global arena. We lack a means for treating the various contradictions as part and parcel of a more coherent order. We do not have the techniques for analyzing the simultaneity of events such that the full array of their interconnections and feedback loops are identified...Complexity theory is compelling in this regard.⁷⁸

T. Irene Sanders offers seven principles of new science that can help people to think the unthinkable, to re-perceive their views of reality, and to gain strategic insights beyond the mind's previous reach. These principles help analysts to know where to look, how to look, and when to look:

- 1) Look at whole systems, not just their parts.
- 2) There is a relationship between order and disorder, and self-organizing change occurs as a result of their interactions.
- 3) A small event in one sector can cause tremendous turbulence in another.
- 4) Maps, models, and visual images make it easier to see connections, relationships, and patterns of interaction.
- 5) Scanning across disciplines and industries is the key to seeing emerging conditions, paradigm shifts, and opportunities for innovation.
- 6) Nonlinear thinking is critical to recognizing clues about changes in the environment.

⁷⁵ Margaret J. Wheatley, *Leadership and the New Science: Discovering Order in a Chaotic World*, 2^d ed. (San Francisco, California: Berrett-Koehler Publishers, 1999), 118.

⁷⁶ Wheatley, 15.

⁷⁷ Friedman, 20.

⁷⁸ Rosenau, p. 3 of 11.

7) Perspective is important when viewing chaotic events.⁷⁹

For most people, holistic thinking requires unlearning. They believe it is natural to view systems as Newtonian machines, each composed of parts with an understandable logic and purpose.⁸⁰ Wheatley disputes such dissection methods:

Newtonian science is...materialistic—it seeks to comprehend the world by focusing on what can be known through our physical senses. Anything real has visible and tangible physical form...One of the first differences between new science and Newtonianism is a focus on holism rather than parts...Donella Meadows, an ecologist and author, quotes an ancient Sufi teaching that captures this shift in focus: 'You think because you understand one you must understand two. But you must also understand and.'⁸¹

Friedman understands and applies holistic thinking to the global context, arguing that taking a globalist view is the "only way to systematically connect the dots, see the system of globalization and thereby order the chaos."⁸² He goes on to say:

When dealing with any non-linear system, especially a complex one, you can't just think in terms of parts or aspects and just add things up and say that the behavior of this and the behavior of that, added together, makes the whole thing. With a complex non-linear system you have to break it up into pieces and then study each aspect, and then study the very strong interaction between them all. Only this way can you describe the whole system.⁸³

⁷⁹ T. Irene Sanders, *Strategic Thinking and the New Science: Planning in the Midst of Chaos, Complexity, and Change* (New York: The Free Press, 1998), 78.

⁸⁰ Wheatley notes: "A world based on machine images is a world described by boundaries. In a machine, every piece knows its place." Wheatley, 30.

⁸¹ Wheatley, 10.

⁸² Friedman, 24.

⁸³ Friedman, 28.

1. Chaos Theory

Chaos theory is not new. Futurist, Peter Schwartz, writes: "...the role of chaos in complex systems was already visible in the mid-1970s in the writings of an obscure Belgian mathematician named Rene Thom."⁸⁴ It came to the attention of scientists who, through the use of computers, began to notice distinct patterns within chaotic systems.⁸⁵ According to Wheatley:

New understandings of change and disorder have also emerged from chaos theory. Work in this field has led to a new appreciation of the relationship between order and chaos. These two forces are now understood as mirror images, two states that contain the other. A system can descend into chaos and unpredictability, yet within that state of chaos the system is held within boundaries that are well-ordered and predictable. Without the partnering of these two great forces, no change or progress is possible. Chaos is necessary to new creative ordering. This revelation has been known throughout time to most human cultures; we just needed the science to help us remember it.⁸⁶

Major Charles Pfaff applied chaos theory to the battlefield in his recent article for *Military Review*. He wrote: "If unexpected events are the results of random chance, then applying chaos theory will offer little insight. Chaotic systems are not random systems, and thus their outcomes are not accidental, but rather the result of complex interaction among the system's components. While these

⁸⁴ Schwartz, *The Art of the Long View*, 79.

⁸⁵ Wheatley writes: "Chaos has always partnered with order—a concept that contradicts our common definition of chaos—but until we could see it with computers, we saw only turbulence, energy without predictable form. Chaos is the last state before a system plunges into random behavior where no order exists. Not all systems move into chaos, but if a system becomes unstable, it will move first into a period of oscillation, swinging back and forth between two different states. After this oscillating stage, the next state is chaos, and it is then that the wild gyrations begin. However, in the realm of chaos, where everything should fall apart, the strange attractor emerges, and we observe order, not chaos." Wheatley, 117.

⁸⁶ Wheatley, 13.

outcomes are usually impossible to predict, the process that yields them is not impossible to understand."⁸⁷ In other words, there is order in chaotic systems.⁸⁸

2. Quantum physics

The quantum world is weird. The antithesis of Newtonian physics and reductionism, quantum logic defies boundaries, metaphors, and measurement.⁸⁹ Quantum physicists are said to often regret their departures from traditional scientific views because the quantum world offers little comfort to those who choose to study it. That is because so many quantum phenomena defy Newtonian and other sorts of legitimized logic. So why go there? Margaret Wheatley reasons:

...breaking apart and putting back together of problems. It does not work. The lists and charts we make do not capture experience. They only tell of our desire to control a reality that is slippery and evasive and perplexing beyond comprehension. Like bewildered shamans, we perform rituals passed down to us, hoping they will perform miracles. No new wisdom teacher has appeared to show us how to live more wisely in this universe. Our world grows more disturbing and mysterious, our failures to predict and control leer back at us from many places, yet where else can

⁸⁷ Major Charles A. Pfaff, US Army, "83 Chaos, Complexity and the Battlefield" *Military Review* (JulAug00); available from <http://www-cgsc.army.mil/milrev/English/JulAug00/pfaff.htm>; accessed 10 August 2000, p. 1 of 6. Pfaff elaborates: "As systems increase in complexity, they are more likely to become chaotic. In chaotic systems, small changes can have enormous and surprising effects. A chaotic system results from the interaction of subsystems that vary nonlinearly. In such systems, the subsystems are couples, which means that the state of any particular subsystem affects the state of other subsystems. Since the values that describe the subsystems vary in an irregular way, the state of the system itself varies irregularly. When three or more such subsystems comprise the larger system, the state of the larger system becomes much more sensitive to small disturbances. In fact, the more subsystems there are and the more coupling between them, the more likely chaos is." p. 2 of 6.

⁸⁸ "Chaos is order without predictability." T.J Cartwright "Planning and Chaos Theory" *APA Journal* (Winter, 1991), 44.

⁸⁹ "We have broken the world into parts and fragments for so long now that we are ill-prepared to see that a different order is moving the whole. According to British physicist David Bohm, 'The notion that all these fragments are separately existent is evidently an illusion, and this illusion cannot do other than lead to endless conflict and confusion.'" Wheatley, 42.

we turn? If the world is not a machine, then our approaches cannot work. But then, where are we?⁹⁰

Quantum reasoning is all about relationships and connections between particles, rather than the elementary particles themselves. Says Wheatley: "In the quantum world, relationship is the key determiner of everything. Subatomic particles come into form and are observed only as they are in relationship to something else. These unseen connections⁹¹ between what were previously thought to be separate entities are the fundamental ingredient of all creation."⁹²

The quantum world is infinitely complex and unpredictable. Quantum physicists, by observing conditions and relationships, can calculate probabilities for quantum leaps, but Wheatley writes, "because it is impossible to ever know everything about the whole, it is impossible to ever predict exactly where or when influences will manifest."⁹³ Quantum physics explains action at a distance as a function of fields—unseen, immaterial forces that influence objects in space. The objects are not the centerpieces worthy of studying; the fields are. Wheatley introduces the basis for the idea that nothing is real in the quantum world:

Shroedinger's cat is a classic thought problem in quantum physics. Physicist Erwin Schroedinger constructed the problem in 1935 to illustrate that in the quantum world nothing is real.⁹⁴ We cannot know what is happening to something if we are not looking at it, and, stranger yet,

⁹⁰ Wheatley, 28.

⁹¹ "We never know how our small activities will affect others through the invisible fabric of connectiveness. I have learned that in this exquisitely connected world, it's never a question of 'critical mass.' It's always about critical connections." Wheatley, 45.

⁹² Wheatley, 11.

⁹³ Wheatley, 44.

⁹⁴ "In quantum logic, it is impossible to expect any plan or idea to be real to people if they do not have the opportunity to personally interact with it. Reality is co-created by our process of observation, from decisions we the observers make about what we choose to notice. It does not exist independent of those activities. Therefore, we cannot talk people into our version of reality because truly nothing is real for them if they haven't created it." Wheatley, 68.

nothing does happen to it until we observe it. Central to the quantum world, Zohar wrote, is the idea that 'unobserved quantum phenomena are radically different from observed ones.'⁹⁵

This is a world that prioritizes process over plans and relationships over definitive tasks.⁹⁶ Quantum physics answers "either/or" questions with a resounding "both"—nothing exists independent of its relationships with others.⁹⁷

3. Self-organizing systems

The third concept contained within the new science deals with self-organizing systems. The basic idea is that systems, like organizations, adapt in a ways that allow the system to survive and grow. The key ingredient to such purposeful change is precisely what our organizations and most people try hardest to avoid—disequilibrium. But the properties of self-organizing systems say such even-keeled logic is flawed, counter-intuitive, and bound to fail. One needs only to look at nature for the answers. According to Wheatley:

Equilibrium is neither the goal nor the fate of living systems, simply because as open systems they partner with their environment. These systems are called 'open' because they have the ability to continuously import energy from the environment and to export entropy. They don't sit quietly by as their energy dissipates. They don't seek equilibrium. Quite the opposite. To stay viable, open systems maintain a state of non-equilibrium, keeping themselves off balance so that the system can change and grow. They participate in an open exchange with their world, using what is there for their own growth. Every organism in nature, including us, behaves in this way.⁹⁸

⁹⁵ Wheatley, 61.

⁹⁶ "When we create a map—displaying what we think are all the relevant elements and interactions—we hope to be able to manipulate the system for the outcomes we desire. We are thinking like good Newtonians. But what we hope for is not possible. There are no routes back to the safe harbor of prediction—no skilled mariners able to determine a precise course across the quantum ocean." Wheatley, 43.

⁹⁷ Wheatley, 35.

⁹⁸ Wheatley, 78.

Disequilibrium enables change and growth.⁹⁹ In fact, equilibrium is the undesirable state because it means that there is nothing left for the system to do.¹⁰⁰

All life takes form as dissipative structures—they dissipate or give up their form in order to recreate themselves.¹⁰¹ Ilya Prigogine, author of *The End of Certainty: Time, Chaos, and the New Laws of Nature*¹⁰² and *Order Out of Chaos*,¹⁰³ demonstrated that disequilibrium is necessary for a system's growth. Wheatley wrote: "He named these systems dissipative structures to bring attention to their paradoxical nature. They dissipate or give up their form in order to recreate themselves in new forms...Faced with increasing levels of disturbance, these (adaptive, resilient) systems possess the innate ability to reorganize themselves to deal with the new information."¹⁰⁴ John Briggs and F. David Peat, authors of *Turbulent Mirror*, further explain Prigogine's paradoxical term: "Dissipation suggests chaos and falling apart; structure is its opposite. Dissipative structures are systems capable of maintaining their identity only by remaining continually open to the flux and flow of their environment."¹⁰⁵

⁹⁹ "Once it was noted that systems were capable of exchanging energy, trading energy for entropy, scientists realized that deterioration was not inevitable. Disturbances could create disequilibrium, but disequilibrium could lead to growth..." Wheatley, 79.

¹⁰⁰ Wheatley, 76.

¹⁰¹ Wheatley, 80.

¹⁰² Ilya Prigogine, *The End of Certainty: Time, Chaos, and the New Laws of Nature* (New York: The Free Press, 1998)

¹⁰³ Ilya Prigogine and Isabelle Stengers, *Order Out of Chaos* (New York: Bantam, 1984)

¹⁰⁴ Wheatley, 79.

¹⁰⁵ John Briggs and F. David Peat, *Turbulent Mirror: An Illustrated Guide to Chaos Theory and the Science of Wholeness* (New York: Harper & Row Publishers, 1989), 139.

There is another very important characteristic of self-organizing systems—their ability to maintain self-reference. The system changes in order to preserve itself, but in doing so, creates something new. Wheatley explains:

When the environment shifts and the system notices that it needs to change, it always changes in such a way that it remains consistent with itself. This is autopoiesis in action, a system focused on maintaining itself, producing itself. It will choose a path into the future that it believes is congruent with who it has been. Change is never random; the system will not take off in bizarre new directions. Paradoxically, it is the system's need to maintain itself that may lead it to become something new and different. A living system changes in order to preserve itself.¹⁰⁶

So, systems need to change in order to survive and grow. The most viable systems seize the opportunities to change by maintaining an open system with a strong sense of self.¹⁰⁷ Over time the system creates a self-organizing dynamic that allows it to drive its own change, rather than being driven by its surrounding environment. In a sense, self-organizing systems seem to subscribe to the slogan: "Change your environment or the environment will change you!"

To recap, new science urges against trying to reduce the wonders of the world to a definable set of known variables and linear equations.¹⁰⁸ The world is infinitely more complex than scholars have heretofore appreciated, but new

¹⁰⁶ Wheatley, 85.

¹⁰⁷ "Openness to the environment over time spawns a stronger system, one that is less susceptible to externally induced change. What comes to dominate over time is not outside influences, but self-organizing dynamics of the system itself. Because it partners with its environment, the system develops increasing autonomy from the environment and also develops new capacities that make it increasingly resourceful." Wheatley, 84.

¹⁰⁸ "In the words of one analyst, 'Look out the nearest window. Is there any straight line out there that wasn't man made? I've been asking the same question of student and professional groups for several years now, and the most common answer is a grin. Occasionally a philosophical person will comment that even the lines that look like straight lines are not straight lines if we look at them through a microscope. But even if we ignore that level of analysis, we are still stuck with the inevitable observation that natural structures are, at their core, nonlinear. If [this] is true, why do social scientists insist on

science theory contains perspectives that reveal nature's rules and routines in a different light. Analysts can recognize these processes if they know where and when to look.¹⁰⁹ First of all, they need to disregard man-made boundaries and encourage more cross-disciplinary analysis. Then, new science offers lessons from chaos theory, quantum physics, and self-organizing systems. This way of thinking recognizes chaos as the necessary prerequisite for transformation. In the absence of transformation, energy is lost through endless systemic perturbation. New science also incorporate quantum logic, which examines the relationships between and conditions surrounding components of a system. Quantum theory looks for the intangible explanations like fields and other sorts of "nonmatter" or space. On top of chaos theory and quantum physics, new science introduces the concept of self-organizing systems. These are systems that thrive in disequilibrium by maintaining the ability to survive while changing in accordance with self-referencing rituals. Says Wheatley: "Self-reference is the key to facilitating orderly change in the midst of turbulent environments. In organizations, just as with individuals, a clear sense of identity—the lens of

describing human events as if all the rules that make those events occur are based on lines?" Rosenau, p. 7 of 11.

¹⁰⁹ "The interrelationships of the agents is what makes them a system. The capacity of the agents to break with routines and thus initiate unfamiliar feedback processes is what makes the system complex (since in a simple system all the agents consistently act in prescribed ways.) The capacity of the agents to cope collectively with the new challenges is what makes them adaptive systems. Such, then, is the modern urban community, the nation state, and the international system. Like any complex adaptive system in the natural world, the agents that comprise world affairs are brought together into systemic wholes that consist of patterned structures ever subject to transformation as a result of feedback processes from their external environments or from internal stimuli that provoke the agents to break from their established routines." Rosenau, p. 4 of 11.

values, traditions, history, dreams, experience, competencies, culture—is the only route to achieving independence from the environment."¹¹⁰

New science offers a different perspective for macro-analysis. It does not contain all of the answers. However, it does break from tradition to reveal new aspects of many age-old mysteries. Wheatley summarizes the new science perspective: "All life participates in the creation of itself, insisting on the freedom to self-determine...(and) participates actively with its environment in the process of co-adaption and co-evolution. No subatomic particle exists independent of its participation with other particles...even reality is evoked through acts of participation between us and what we choose to notice."¹¹¹

E. CHAPTER SUMMARY

This research paper uses the primary conceptual tools introduced in this chapter—social science, political science, and new science—to evaluate change. To these tools were added perspectives on information theory. Before turning next to the futures case study, several ideas merit reemphasis. First, there are unavoidable and inconsequential overlaps between the various theories and levels of analysis. Many previous researchers appear to have failed to make sufficient headway through conventional approaches and tidier disciplines. Though this approach may not be the conceptual cure-all so many seek, Rosenau admits the need for a new way of thinking about the world:

In some corners of the policy-making community there would appear to be a shared recognition that the intellectual tools presently available to probe

¹¹⁰ Wheatley, 86.

¹¹¹ Wheatley, 163.

the pervasive uncertainty underlying our emergent epoch¹¹² may not be sufficient to the task. More than a few analysts could be cited who appreciate that our conceptual equipment needs to be enhanced and refined, that under some conditions nonlinear approaches are more suitable than the linear conceptual equipment that has served for so long as the basis of analysis, that the disciplinary boundaries that have separated the social sciences from each other and from the hard sciences are no longer clear-cut, and that the route to understanding and sound policy initiatives has to be traversed through interdisciplinary undertakings.¹¹³

The first perceptual tool, social science, is best described by Allison's three organizational models. Model I views all individuals and organizations as rational actors. Model II bases organizational behavior on parochial constraints and structures. Model III recognizes the political games enacted by individuals. Information theory is also considered social science, emphasizing the importance of social context as a prerequisite for differentiating among data, information, and knowledge.

The second tool, political science, concentrates on justifying the behavior of nation-states. Geopolitical perspectives vary from the realist who views state behavior as a function of structure or balance-of-power to the globalist who explains the international system as a function of interdependent economics and world opinion.

¹¹² Schwartz places our current epoch in an interesting historical context. Paul Velery wrote in 1932: "All of the notions we thought solid, all of the values of civilized life, all that made for stability in international relations, all that made for regularity in the economy...in a word, all that tended happily to limit the uncertainty of the morrow, all that gave nations and individuals some confidence in the morrow...all this seems badly compromised. I have consulted all the augers I could find, of every species, and I have heard only vague words, contradictory prophecies, curiously feeble assurances. Never has humanity combined so much power with so much disorder, so much anxiety with so many playthings, so much knowledge with so much uncertainty. (Paul Velery, "Historical Fact" 1932)" Schwartz, *The Art of the Long View*, 1.

¹¹³ Rosenau, p.3 of 11.

The third tool, new science, offers the most theoretical and broadest view of systems. New science presumes complexity and surprising behavior, values chaos, views disequilibrium as an awaited opportunity for change and renewal, acknowledges intangible forces at work, knows systems will reorganize themselves in an effort to survive, and otherwise finds order within disorder.

This page intentionally blank.

III. ALTERNATIVE FUTURES

A. OVERVIEW

This chapter introduces an array of plausible scenarios or alternative futures—an original strategic context for planning and analysis. Relatively simplistic by design and purposely taken to extremes, the alternative futures are intended to loosely circumscribe a possible future state of events. The scenarios should not be viewed as predictions.¹¹⁴ To do so would trivialize the futures process and product, thereby obscuring the most important lessons behind an unintended shroud of disbelief. There will be some fundamental truths in each of the various alternative futures, but given the range of complexity and variables, futurists cannot pretend to be able to predict the future with any substantial certainty or degree of detail. This is the visionary's paradox. Everyone wants to know credible details about the future, but when such details are provided, they are simply extensions of present realities and thought.¹¹⁵ Pierre Wak, a respected futures planner in the London offices of Royal Dutch/Shell in the 1970s, wrote:

Scenarios deal with two worlds...The world of facts and the world of perceptions. They explore for facts but they aim at perceptions inside the heads of decision-makers. Their purpose is to gather and transform information of strategic significance into fresh perceptions. This transformation process is not trivial—more often than not it does not happen. When it works, it is a creative experience that generates a

¹¹⁴ "Scenarios are not predictions. It is simply not possible to predict the future with certainty. An old Arab proverb says that, 'he who predicts the future lies even if he tells the truth.' Rather, scenarios are vehicles for helping people learn." Schwartz, *The Art of the Long View*, 6.

¹¹⁵ See "the paradox of the visionary" and others in a book by Watts Wacker and James Taylor, *The Visionary's Handbook: Nine Paradoxes That Will Shape the Future of Your Business* (New York, HarperCollins Publishers, 2000), pp.254.

heartfelt 'Aha!' from your managers and leads to strategic insights beyond the mind's previous reach.¹¹⁶

Put another way by Peter Schwartz: "Scenarios are not about predicting the future, rather they are about perceiving futures in the present. . . . a tool for ordering one's perceptions about alternative future environments in which one's decisions might be played out. Alternatively: a set of organized ways for us to dream effectively about our own future."¹¹⁷

Scenarios were first used by the U.S. Air Force World War II to prepare alternative strategies. Later, in the 1960s, Herman Kahn applies scenarios to the business world.¹¹⁸ Advocating the merits of futures scenarios for business leaders, Schwartz explains:

The point is not to 'pick one preferred future,' and hope for it to come to pass (or, even, work to create it—although there are some situations where acting to create a better future is a useful function of scenarios). Nor is the point to find the most probable future and adapt to it or 'bet the company' on it. Rather, the point is to make strategic decisions that will be sound for all plausible futures. No matter what future takes place, you are much more likely to be ready for it—and influential in it—if you have thought seriously about scenarios.¹¹⁹

Alternative futures serve as a provocative backdrop for planning, perceiving and re-perceiving—drawing out elusive answers to endless "what if" questions.¹²⁰

The study of the future in general, and alternative futures in particular, requires a quality of mind that Americans find especially difficult to acknowledge, value, and maintain. Arquilla highlights this cultural encumbrance: "Much of this

¹¹⁶ Schwartz, *The Art of the Long View*, 37.

¹¹⁷ Schwartz, *The Art of the Long View*, 36,4.

¹¹⁸ Schwartz, *The Art of the Long View*, 7.

¹¹⁹ Schwartz, *The Art of the Long View*, 1.

¹²⁰ "Social scientists often have a hard time; they have been trained to stay away from 'What if?' questions and concentrate on 'What was?'" Accountants and engineers typically

tendency to shy away from difficult definitions of conceptual objectives has to do with the traditional American intellectual style which is one of pronounced pragmatism. The American institutions generally—and the American military particularly—are decidedly more comfortable with process than with theory, with action more than reflection, with efficiencies more than effectiveness (there is often a difference), with particular performance than with general coherence, and with the particular more than the holistic.”¹²¹ The point is, the study of alternative futures presents formidable challenges, but the new understanding is well worth the effort.

B. METHODOLOGY

There are many methods for developing alternative futures or long-range scenarios.¹²² The most obvious and quickest way is to leverage the work of others by choosing a credible existing study.¹²³ Another quick way is to identify a respected visionary and plan against his or her predictions. This is often referred to as the genius method. The problem with both of these methods is that they ignore the inherent value of the visioning process to its participants and focus

have a hard time because their training is deterministic.” Schwartz, *The Art of the Long View*, 31.

¹²¹ Arquilla, 219.

¹²² Harvard Business Review published an article in 1997 entitled “Strategy Under Uncertainty.” The article approaches uncertainty from four perspectives: 1) A Clear-Enough Future, 2) Alternative Futures, 3) A Range of Futures, and 4) True Ambiguity. Arguing that true ambiguity rarely applies to most planning scenarios and through forecasting and scanning techniques one can usually paint a clear-enough future to support basic strategic planning, the authors handle the remaining unknowns with alternative futures scenarios. Authors Courtney, Kirkland, and Viguerie, categorize alternative futures methodologies as either discrete “what-if” scenarios where the future can be described as one of a few alternate outcomes, or a range of potential futures defined by a limited number of key variables. We have chosen the latter approach.

mainly on the prophetic product. The value of participation is underscored in this ancient Chinese proverb: "Tell me, I forget. Show me, I remember. Involve me, I understand."¹²⁴ Yet another way to develop alternative futures is to adopt a proactive mindset that first describes a desired future, then applies reverse engineering to design a way to get there—sort of a "create the future" approach. Of course, there are many possible mutations that combine the different methodologies based upon the rationale that the actual future will be both—a function of future creation but also one of future adaption and reaction—a kind of ying-yang relationship.

The final approach to alternative futures involves creating planning scenarios in a variety of ways. Sometimes contemporary trends are carried out into the future in linear ways that justify plausible ends. Other times planners describe a scenario based primarily upon intuition. But the way that combines defensible logic in a fashion that allows for unexpected, yet convincing results is the development of alternate futures via drivers. Drivers are the independent vectors of change that provide the basis for alternative futures. Drivers meet the following criteria: (1) Beyond the planner's control, (2) Orthogonal, meaning related to each other without cause-effect relationship, (3) Steer or focus the scenario, (4) Capable of being described in extremes (polarity), and are (5) Relevant to the planning object. In other words, each driver contributes to framing the future in a way that is totally independent from any of the other

¹²³ There is apparently a Spanish proverb that goes, "Well stolen is half done". This may be, as Davenport and Prusak argue, a good philosophy for those in the knowledge business who cannot afford to "generate new ideas for their own sake." Davenport, 53.

¹²⁴ Holman, 73.

variables, or drivers. It may be helpful to consider a tree as a metaphor for alternative futuring, where the most compelling drivers can be thought of as comprising the main trunk that rises above the many lesser drivers, or roots. The branches, or alternative futures, represent the various possible combinations of the drivers.

Setting aside the proactive aspect of future creation, the question remains. What is the best way to arrive at, and distinguish between, alternative futures scenarios? The best way for the Future Concepts Working Group (FCWG) turned out to be the method that emphasized the value of the process to its members, started from scratch to develop the widest range of alternative futures, and resulted in a manageable number of telling scenarios for strategic planning. Taken together, the scenarios attempt to cover the widest range of plausible futures while each scenario describes a very different world setting. No scenario is dependent upon historical structures, certain chains of events, probabilities, or anything other than the sequential combinations of the drivers. In this way, alternative futures allow for the prospect of discontinuous or dubious change.

What single factor makes the world the way it is, and therefore will determine the way the world will be in the future? That is the question that was posed to the FCWG as it began to develop alternative futures. Using electronic brainstorming, a collaborative software package that enables independent, anonymous, and simultaneous inputs from 45 participants, the futures group quickly compiled the following list of potential drivers:

global expectations, national will*, global event*, religion, power distribution, space control*, changing of US demographics, technology advances*, resource availability*, global availability of information*, global political interaction*, strategic interests of the US*, emergence of a new superpower*, economics (global and national)*, urbanization, human universals*, social unrest*, demographics*, family values, asymmetric attack on homeland, nature of future conflict*, proliferation of weapons of mass destruction (WMD)*, international organized crime*, environmental factors*, US fails as a state, information dominance*, rate of technological change*, substandard living conditions worldwide*, information as a vital resource, humanitarian assistance and security for displaced peoples, decentralized leadership and policy-making, elimination of rogue/terrorist safe havens, sanctity of human life becomes meaningless, full development of telepathy and mind control, success of US education system, re-engineered US government, and opportunities to establish peace.

Table 1. FCWG drivers (* denotes the top 20 drivers).

Next, the group debated, racked, and stacked the list of independent variables in an exhausting effort to winnow the list to the top three drivers. Three drivers arranged in a matrix would provide the framework for eight alternative futures.

Unsurprisingly, perhaps, the top three drivers were economics, technology distribution, and politics. But each driver takes on a new hue when its extremes are labeled. These polar extremes incorporate traces of several of the other drivers that were contained in the larger list. For instance, the limits of the economics driver are designated “global” versus “hegemonic.” Global economics are based on free trade, no tariffs or other economic sanctions, everybody shares in a world without economic boundaries, and the notion of worldwide inclusion. On the other hand, a hegemonic economy is based upon isolated economic nation-states, trade limits, and a rationale for excluding potential trade partners. Tariffs, sanctions, and other barriers restrict trade, which may result in extreme economic competition and trade wars. Perhaps the scarcity of certain

resources, economic competition based upon information rather than industrial technologies, or the balancing of world powers could provide the reasoning for hegemonic limits on trade.

The technology distribution driver presupposes the continued advancement of technologies, but places the caveat on where technologies are distributed—or constrained. The “distributed” end of the technology continuum suggests that technology parity exists across the globe. Technology is distributed and shared by many in such a way that all who want access will have access. Conversely, the other end of the technology continuum is labeled “constrained” to imply that technology is only accessible to the privileged few. In some cases, the constrained extreme may be a function of a particularly key piece of technology, such as an inexhaustible power cell, invisible force field, or encryption key. Technology is much more than information technology.¹²⁵ Among others, it may also include biomedical, weapons, and electronic technologies. Considerations surrounding the technological driver may be the rate of technological change, the proliferation logic, the potentiality of intelligent, conscious machines, and the resulting transparency of oceans, atmosphere, and surface operations for those who have the technological edge.

Based on the idea that the power of the nation-state is eroding, the final driver describes the primary political actors. On the one hand, the driver posits a world where sub-national actors determine the political agenda. Sub-national actors

¹²⁵ "Today technology, particularly information technology, is the locomotive, defining what is possible and pushing old ideas, values, methods, and organizations into obsolescence. As part of this, the information revolution is shaping the strategic environment in which armed

range from nontraditional political entities such as legitimate global businesses to illegal organizations (terrorists, drug cartels, international criminal organizations, etc.). On the other hand, the politics driver characterizes a world controlled by supranational actors. Here the dominant political actors are groups of nation-states, as we currently know them. Each nation-state maintains an internationally recognized government, constituents, and sovereign territory, but all states are subordinated by the political efficacy of their respective supranational political entities. Many factors may impact the political driver: the rise of non-state actors at the expense of nation-state power, corporations with private armies and greater financial clout than the countries that "support" them, competition for and guardianship of scarce resources, the idea that nations are not geographical distinctions, and the effects of globalization. Once again, the three most important independent variables that will circumscribe the strategic context for the world in the future are the character of economics (global or hegemonic), distribution of technology (distributed to many or in the hands of few), and the primary political actors (supranational entities or sub-national players).

C. RESULTS

The three drivers were aligned in a factor tree to depict eight futures. Then, in an effort to conjure up images for the various driver arrays, the FCWG assigned names to each world.¹²⁶ Hegemonic economics, distributed technologies, and

conflict takes place. The revolution in military affairs is the dependent variable, driven and buffeted by wider changes." Metz, 3.

¹²⁶ "The scenario-planner looks at converging forces and tries to understand how and why they might intersect—then extends that imagination into coherent pictures of alternative

supranational politics characterize future A (Economic Feudalism). Hegemonic economics, distributed technologies, and sub-national politics characterize future B (Cyberland). Global economics, constrained technologies, and supranational politics characterize future C (No-Tech Global Bank). Global economics, constrained technologies, and sub-national politics characterize future D (World, Inc.). Global economics, distributed technologies, and supranational politics characterize future E (Utopia). Global economics, distributed technologies, and sub-national politics characterize future F (Blade Runner). Hegemonic economics, constrained technologies, and sub-national politics characterize future G (Mad Max). And lastly, hegemonic economics, constrained technologies, and supranational politics characterize future H (Present Future).

Having created eight alternative futures, the FCWG next contemplated the probability of occurrence and the associated operational and organizational challenges associated with each. Each world was rated separately against each of the three criteria. Keeping in mind that the planning object in this case was the U.S. military in general and special operations forces in particular, certain scenarios described a harmonious world where military forces appear to have very little utility. Other futures described a state of affairs that seems highly unlikely. These futures were dismissed from further consideration on the basis of low probability or low operational challenge. Additionally, if the future seemed highly probable but presented few organizational challenges, it too was set aside. Consequently, Futures A (Economic Feudalism), C (No-Tech Global Bank), E

futures. That's what gives texture to scenarios." Schwartz, *The Art of the Long View*, 138.

(Utopia), and G (Mad Max) will not be among our final four futures. The following alternative futures comprise the short list for subsequent analysis:

1. Future B: Cyberland (Hegemonic Economics, Distributed Technology, Subnational Politics)

In the world of Cyberland, major corporate entities (technology, transportation, energy, commerce, etc.) have combined to create a universal business conglomeration (UBC). The UBC is a virtual organization and, as such, is hard to define. Sub-national entities formed by varying mixes of legitimate businesses, illegal organizations, nation-states, and non-state actors dominate the political landscape. These global powers control the international environment, ably superimposing their agendas over the will and values of the individual nation-states. Non-state actors operating in the United States offer a challenge to the federal and state governments. These transnational entities cooperate to further their mutual interests, often at the expense of unwitting segments of society. Governments are constantly struggling against the ability of the universal business conglomeration to manipulate information. UBC focuses on short-term gains without regard for environmental or moral consequences. Intense, brief conflicts occur regularly due to political discord, trade wars, and the absence of a global super power. The world is in legal turmoil; sub-national actors dominate the political environment. Legitimate governments attempt to come to grips with the legal ambiguity, lack of accountability and ethics, and asymmetrical and asynchronous advantages of powerful sub-national organizations and transactions.

Violent, frequent, short-duration wars are the norm. Non-destructive weapons are often used to preclude the loss of business assets and to avoid generating noncombatant casualties. The force projection capability of national militaries, including the U.S. military, has become questionable in the eyes of the global community. Non-state actors are establishing their own paramilitary forces, ostensibly overnight. Unable to control the proliferation of dangerous off-the-shelf technologies, the U.S. military is focused on the significant, state-of-the-art military capabilities of major non-state entities. The widespread distribution of technology has negated many of the U.S. military advantages.

Sub-nationals consider conflict as a matter of business policy. In a world based on continuous competition and exclusionary practices, non-state military forces enforce sub-national policies and strategies. Conflicts between nation-state and sub-national militaries are usually intense battles (using lethal and non-lethal technologies) that typically last a few hours to a few days, but the competition never ends. For the U.S. military, there is no "end state."

Although there are economic controls, competing groups seek an informational leg up to remain viable. The information explosion continues through the use of widely distributed technologies. Market information is coveted and disseminated through local area networks to meet or beat the competition. Ever-changing alliances within the economic blocs keep competitors on the leading edge of business while fueling a need for more and more information.

Knowledgeable individuals are highly valued by the national leaders and top organizations, demanding an ever-expanding Infosphere architecture. However,

sub-national politics continue to impose limitations to ubiquitous information flow as power brokers enact self-protection rituals. The 15-second radio and television sound byte backed up by the written word in the form of newspapers and magazines continue to be main sources of information, although most are distributed electronically. Information flows faster by necessity, requiring no hardware downtime and resulting in heavy technological dependence.

Political and economic leaders attempt to shape individual knowledge by doling out selected information and misinformation, enacting economic controls, scripting local politics, and restricting the use of information systems. Naturally, such controls create the potential for constant tension and conflict as information technologies proliferate around the world. As the elite continues to control information through cyber-patrols, individuals enact “survivor response” rituals, forming rapid alliances with others in order to bypass political controls.

2. Future D: World, Inc. (Global Economics, Constrained Technology, Sub-national Politics)

The world operates within one large, open economy and a single global stock market. The Global Bank controls all monies, making loans primarily to legitimate states and large non-state conglomerates. Major corporations and other entities have combined to create large transnational corporations. Transnational corporations comprised of varying mixes of legitimate businesses, illegal organizations, and non-state actors dominate the political environment. These powers effectively control the international environment and superimpose their agendas over the will and values of the individual nation-states. In this world,

there are large parts of the world that are starving in abject poverty. Even with a global economy, the people who reap the benefits of that economy are the ones who have the most up-to-date technologies and are aligned with other people and organizations with similar capabilities. Inside any given country, there is a great disparity between the "haves" and "have-nots." Time constraints weigh so heavily upon the "haves" that they view time spent educating the "have-nots" as literal threats to their own survival. Lack of education and few opportunities to catch up causes poor, uneducated masses to fight for survival all over the world. Free-market capitalism has no conscience though, showing little sympathy for those left in its wake.

The U.S. is fighting to dominate and project its influence in this world. It cooperates with non-state entities, nation-states, and supranational organizations to help achieve its goals through influence. The U.S. has a technological advantage over most groups. Major threats will come from large international non-state organizations that may be headquartered in the U.S. and staffed by U.S. citizens.

Sub-national politics and constrained technologies enable leaders to effectively limit information flow despite the open, global economy. Perishable knowledge about worldwide goods and services, though extremely important and in high demand is filtered and controlled by political and economic leaders by limiting the distribution of information technologies. Information flows across the Infosphere through wide-area networks, yet encumbered by controls and firewalls. Corporations with access to the global economy flourish and expand

their information flow, while denying certain information to other corporations and government agencies. Corporate spies have become valued employees and strategic assets as they provide critical information necessary for global economic success.

For a relatively select few in the world, education is achieved by using the latest technology and information systems available, giving rise to elitist populations. For the vast majority of the world's population, however, education is still accomplished the old fashioned way or not at all. They are left on their own to learn and earn.

Constrained technology and sub-national politics combine to limit information sources for the common man. Newspapers, radio and television, while readily available, disseminate less and less meaningful information. Most of these information conduits are dominated by entertainment content and sourced from controlled information. Because of limited production and distribution of complex information systems, costs remain high. Only the elite has the means to transmit and receive global information. The rest of the world reverts back to circumstances of dependency upon the company store and local leaders for the information, goods, and services they need.

3. Future F: Blade Runner (Global Economics, Distributed Technology, Sub-national Politics)

While there is no widespread poverty in this world, there are significant portions that have much greater wealth than the rest of the world. The rich are very rich. The social safety net that national governments used to provide to

their citizens now only exists in these large corporations. Therefore, some groups have the privilege of better medical and retirement security systems than do others. The omnipresent distribution of technology allows rapid, immediate transmissions of information and services to any place in the world. The world runs with one large, open economy and a combined global stock market. The Global Bank controls all money supplies and makes loans to nation-states and non-state conglomerates. Major corporations and other entities have combined to create large transnational corporations. These corporations encompass varying mixes of legitimate businesses, illegal organizations, nation-states, and non-state actors—all trying to dominate the political environment.

The U.S. is fighting to remain a relevant entity and to maintain the inherent ability to project its influence in this world. It acts through non-state groups, nation-states, and supranational organizations to help achieve its goals through influence. Major threats come from large international organizations and small groups of well-informed groups who wish to influence the policies and practices of the U.S.

The global economy and widespread distribution of technology has catapulted information and information systems to new heights. Global economic demands continue to push the limits and state-of-the-art of information systems as competing businesses and organizations seek to gain and maintain the competitive edge. Agriculture, previously known as one of the least information-intensive pursuits, is now among the most dependent information-dependent ventures. Biotechnology advances provide entirely new products—the capacity

means to feed the world. Just-in-time delivery of foodstuffs drives production and distribution systems to meet the demands of an ever-expanding population.¹²⁷

Individuals also demand more and more of information systems. People are connected through expanding wide-area networks, designed to put business and pleasure pursuits at the tip of a "wrist pilot" stylist. Information is transmitted and received rapidly, widely, and continuously through new light source packages that make obsolete previous wireless technologies. Political leaders try to limit the proliferation of technologies in the name of security and governance. They fail however, as new technologies spread faster than legislative controls. Virtual societies arise, raising issues of individual and societal rights to privacy. For example, medical centers possess the capacity to virtually monitor and affect the lifelong biometrics of individuals.

Some governments exploit the information explosion to provide population controls. Cyber-police scan the Infosphere searching for criminal activity, and tracking their people. As national governments attempt to defend themselves against sub-national competitors, "Big Brother" watches and acts with limited success.¹²⁸

Business opportunities skyrocket as technology and information proliferation increase demands for goods and services. However, the spirals of information and technology growth exceed the controls of any single group, government or agency. Groups form opportune alliances in an attempt to corner the information

¹²⁷ "World Needs High-tech Farming To Feed Itself," Reuters Limited, 18 Aug 00.

¹²⁸ George Orwell, *1984*, (New York: Harcourt Brace Javonovich, Inc., 1949.

and business markets, and/or escape government control, but the markets remain open and uncontrolled.

4. Future H: Present Future (Hegemonic Economics, Constrained Technology, Supranational Politics)

In this world, nation-states have combined to form large supranational alliances. The common bases for these transnational associations are economic interests, mutual security, religion, culture, environmental issues, and geography. These institutionalized conglomerations have supplanted many of the traditional governmental and economic powers of individual nation-states. The United States must act within the greater interests of its supranational political entity to legitimize and achieve its goals. Technology is constrained; only a few of the supranational entities have the most advanced technology, which allows real-time information (about anyone and everything) to be accessed. The U.S. and its supranational group—comprised of Mexico, Canada, and the U.S. (MECANUS)—have a significant technological edge. Consequently, when it comes to manipulating information, MECANUS can outperform most other groups.

Crises are frequent as supranational aggregates are constantly seeking to nullify the advantage of the more technologically-enhanced alliances. Supranational protection forces, capable of global force projection, have replaced nation-state militaries. Economic issues, including competition for resources and control of information, drive most of these conflicts.

Conflicts within any coalition are taken care of by the supranational alliance and are categorized as either a police or policy matter. The U.S. military is focused inward. However, the standing U.S. military formed the nucleus of MECANUS armed forces when they were first established.

The world has developed into competing economic blocs. Constrained technological distribution limits information flow between economies. Systems have been developed to help spy on competitors, but due to costs and controls do not result in the proliferation of information systems or expansion of the Infosphere.

The supranational governments distrust societal segments within their own economic blocs, resulting in varying levels of information access arrayed upon a wide-area network. Segments within the government continue to be compartmentalized without access to all information and operate on local-area nets. A small group of "political elites" will emerge with total information control.

Populations still depend upon the media of radio, television, and wireless communications for their information, however, the information is limited and filtered by the supranational government to control non-state information. Internet information systems continue to expand but are constrained by the Cyber-police of the supranational government.

E-commerce continues to be an important method for providing goods and services, but is limited outside of the regional trade blocs due to currency exchange problems and regional, hegemonic economic controls involving taxation and trade barriers.

D. CHAPTER SUMMARY

Taken together, these four alternative futures—Cyberland, World, Inc., Blade Runner, and Present Future—combine contrarily to reveal peculiar circumstances as well as general relationships, trends, and tendencies for all worlds. Now that the alternative futures have been presented, one may be tempted to borrow a little from each of the alternative futures to describe the circumscribed center of mass or middle world. Perhaps such a world coalesces to reveal a strategic context where exploitation of information is the norm. The global time/space paradigm is reduced to the point of being nearly inconsequential. Information sharing and easy access to the global network spells greater visibility and awareness of social happenings. This affects the rise of a global conscience and greater expectations. Resources—to include potable water, arable land, raw materials, and fuels—become scarce and are therefore matters of competition. Populations in pursuit of perceived opportunities migrate towards the shores and cities. Globalism becomes the compelling economic model, drawing individuals, societies, and nations into the webs of interdependence. The environment continues to suffer the ravages of modernity, presenting problems of epic proportions. Technologies proliferate around the world presenting daunting and unavoidable circumstances for exploitation. The power of the nation-state experiences relative decline with respect to global entities and sub-national actors. Conflicts, ranging from civil wars to terrorist activities, tend to occur at the sub-national levels and within national borders.

While today this middle world may frame the most believable future based upon linear logic and extrapolated current trends, analysis of the extremes represented in the aforementioned scenarios may reveal something else—something unexpected. This is the challenge for futurists, to stay beyond present day realities and out on some distant hill where others dare not venture. The middle world, therefore, will not be analyzed with the others.

Taken together, the four alternative futures offer not only the most probable futures—they also present the most challenging and interesting future tapestry against which to ask questions about societal change, areas of conflict, and infer responses. In the next chapter, social, political, and new science theories are applied to these four alternative futures in hopes of discovering unexpected societal phenomena.

IV. ANALYSIS

A. OVERVIEW

The following analysis is the result of straining the preceding alternative futures through the social, political, and new science perspectives presented in Chapter II. Detailed analytical charts are included in the appendix. Not yet prescribing or assuming policy changes for the future, this chapter focuses on understanding the variability and circumstances associated with answering the most central questions: 1) How will society change? 2) What points of contention will arise? With respect to alternative futures, these questions are not as cut and dry as they may seem. First of all, the notion of society takes on new meaning in the Information Age. Since "society" implies a collection of human beings in a community, a netted world offers new opportunities for cyber-societies and for unintended and unexpected commingling. In this case, history may prove less than useful in terms of understanding societal tendencies and norms. Secondly, points of contention, as opposed to conflict or war, refer to exacerbated competition—opportunities for tension and friction that may or may not lead to armed conflict. The challenge will be to look beyond the obvious to recognize the nuances that may take on greater significance in the future. Once again, there will be many false trails and leaps of logic in the undertaking of such sweeping analysis, but this sort of holistic analysis tries to recognize new dynamics and chaotic patterns in order to anticipate the consequences of Information Age change.

Perhaps future violence will derive from those who “lose” in the information game and lash out in desperation. Informed connectivity becomes the ante in a world that depends heavily upon changing perceptions to realize economic, political, and humanitarian gains. Rapid change always has winners and losers, whether the goal is to be “the firstest with the mostest” or a matter of being the one—with the right stuff—at the right place—at the right time. Both scenarios need unimpeded information to remain competitive and relevant. Rapid accumulation of information can easily lead to slower decision making. The more information that has to be assembled then studied and assessed to become a part of the knowledge base, the slower the decision process becomes. Learning to spot information trends along with those entities acting on them will be of prime importance to any player trying to get ahead and maintain a power role.

Even more important than today, future successful organizations will be those with global reach and perspective. The whole world gets involved when information flows across borders, boundaries, and permeates societies at the speed of light. Vigorous, prospering entities will be ones that form strategic partnerships and maintain internal flexibility in order to anticipate, organize for, and stay in step with the pace of change. Those organizations that seek information isolation stand to wither and die.

The interconnectedness of individuals undercuts the power and authority previously maintained by governments and corporations. The days of sole information sources are over, however those who have methodically used information to manipulate their societies will not abdicate control without a fight.

Within military minds, information manipulation immediately conjures up images of free-world archenemies, as opposed to those in the marketing business who may consider societal manipulation in a less sinister light. In either case, information can become both a stabilizing and destabilizing influence on society and the world structure as a whole.

B. ANALYTIC FRAMEWORK (MODEL)

With so many pieces to consider in the futures analysis equation, perhaps Arquilla's metaphor for thinking about future conflict and relationships will set a suitable tone:

Go, in contrast to chess, is more about distributing one's pieces than about amassing them. It is more about proactive insertion and presence than about maneuver...It is more about creating networks of pieces than about protecting hierarchies of pieces...Future conflicts will likely resemble the game of Go more than the game of chess.¹²⁹

The following table applies gross analysis (contrast and compare) to each alternative future in an effort to take a look at entire "game board."¹³⁰

¹²⁹ Arquilla, 11.

¹³⁰ "In a fractal world, if we ignore qualitative factors and focus on quantitative measures, we doom ourselves only to frustration. Instead of gaining clarity, our search for quantification leads us into infinite fogginess. The information never ends, it is never complete, we accumulate more and more but understand less and less. When we study the individual parts or try to understand the system through discrete quantities, we get lost. Deep inside the details, we cannot see the whole. Yet to understand and work with the system, we need to be able to observe it as a system, in its wholeness. Wholeness is revealed only as shapes, not facts. Systems reveal themselves as patterns, not as isolated incidents or data points." Wheatley, 125.

	Social factors (Who are the players?)	Political (What is happening? Global vs. balance of power)	New (What is the role of information? How is it affecting the relationships between organizations and individuals? What are the relationships?)
B: Cyberland: Hegemonic Economics Distributed Technology Sub-national Politics	<ul style="list-style-type: none"> Major corporate players (Universal Business Corporation) Sub-national: legitimate businesses, illegal organizations, nation states and non state actors 	<ul style="list-style-type: none"> Government vs. business Intense, brief conflict Sub-nationals dominate with para-military forces Conflict is business Information is distributed 	<ul style="list-style-type: none"> Individual knowledge will fuel ever-growing Infosphere Information vs. dis-information Shifting alliances to gain control or access to information
D: World, Inc. Global Economics Constrained Technology Sub-national Politics	<ul style="list-style-type: none"> Transnational corporations (TNCs) form major corporations and other entities "Haves" (educated with access) "Have-nots" (uneducated no access, relatively poor) 	<ul style="list-style-type: none"> One large open economy TNCs indirectly control state Elitist class will rise Dependent lower class 	<ul style="list-style-type: none"> Information is controlled and filtered by political and economic leaders Conflict over information control (firewalls and corporate spies)
F: Blade Runner Global Economics Distributed Technology Sub-national Politics	<ul style="list-style-type: none"> Large corporations Global Bank Development of TNCs 	<ul style="list-style-type: none"> No widespread poverty-large open economy with global stock market Nation-states: political leaders try to control information 	<ul style="list-style-type: none"> Push the edge on information as companies and entities struggle to survive WAN development Possible "Big Brother" Shifting entity alliances (uncontrolled change)
H: Present Future Hegemonic Economics Constrained Technology Supranational Politics	<ul style="list-style-type: none"> Nation states form supranational alliances Police vs. military 	<ul style="list-style-type: none"> Competing economic blocks Attempts to control how information is gained or proliferated creates levels of access (filtered) E-commerce limited 	<ul style="list-style-type: none"> Limited access to technology Crises evolve as entities try to gain advantage

Table 2. Gross analysis of all alternative futures.

This sort of analysis is a useful way to begin, but by applying the various theories (social, political, and new sciences) from opposing perspectives (State, non-state, people, and the rest-of-the-world), the dynamic can be better understood. This is the rationale and basis of the analytical model that is used throughout the rest of the chapter. The idea is to examine various conditions of world affairs using each of the theories to anticipate behavior, see the world

through different eyes, and to draw overall conclusions. As a final method for understanding the dynamic between the drivers in relation to a known, more familiar scenario, the same model is applied to the present (i.e., current reality). Once again, detailed analysis charts are contained in the appendix.

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
SOCIAL SCIENCE					
ORG THEORY:					
MODEL I	A				
MODEL II	B				
MODEL III					
INFO THEORY					
MESSAGE					
MEDIUM					
INFOSPHERE					
SOCIETY					
POLITICAL SCIENCE					
RATIONAL ACTOR					
STRUCTURAL REALISM					
SYSTEMS					
GLOBALISM					
NEW SCIENCE					
QUANTUM PHYSICS					
CHAOS THEORY					
SELF-ORGANIZING SYSTEMS					
1. Conclusions:					

Each theory along the left of the table helps predict behavior to some degree for each of the societal grouping along the top of the table. In the case of the first block (**A**), for instance, Model I treats the state as a rational "black box." The second block (**B**) takes a different view by considering state behavior to be the result of different bureaucratic parts. The analysis in the appendix contains a completed table for each alternative future and one for the present. Taken all together, the analysis substantiates various conclusions that are listed at the bottom.

Table 3. EXAMPLE: Alternative Future Analysis: (Description of Drivers)

C. FUTURE ANALYSIS

After applying social, political, and new science philosophies to each of the alternative futures, themes start to emerge across all of the futures with respect to the state, non-state actors, the American people, the rest-of-the-world, and potential for conflict. These themes come to the fore by reading down the corresponding columns of the tables in the appendix.

1. Government (the state)

The traditional state as an organizational entity will change as information erodes the boundaries between the most important organizations and actors. However, it need not entirely go away. In fact, while there will be diluting pressures from all who gain relative strength (disparate sub-national and supranational entities), the state shoulders necessary burdens that nobody else wants. For instance, nearly everybody wants more political clout, financial freedom, and collective security. Most actors will attempt to maintain freedom of action while pressuring the state to arbitrate, legislate, and accommodate their desires. So, the issue does not seem to be that others seek to supplant the state, but rather to mold it in their favor. This will mean incessant demands are in store for the state—too many and too tenable to be ignored.

Global commerce is the slippery slope that the state will follow. This requires broad, agile, and informed policy decisions. Transnational businesses of all sizes and shapes will seek to level worldwide playing fields while improving their own competitive status. In competition, there are winners and losers. The motto for most will be to *have it both ways*—freedom and controls, change and stability,

unimpeded access and protection. Large states will parcel out responsibilities in an effort to cope with such demands, resulting in equally enthusiastic efforts to preserve freedom while imposing controls, changing everything while holding on to pieces of the core, and preserving national security while exposing vulnerabilities. Governance and leadership has always involved making difficult choices—excluding some individuals and groups for the greater good of some larger whole. The issue for the state is to decide who and what constitutes the larger whole. Current categories, labels, and thinking about national entities seem archaic in light of new and emerging realities (ethnic categories, local versus long-distance communications, and local versus global). In a networked world, all local actions can yield global results. Arquilla writes:

In essence, the world is organizing itself in a series of interconnected networks that, while in contact with each other, are not controlled by any traditional hierarchy. Nation-states find themselves pulled simultaneously in fundamentally opposite directions—toward integration by international security, trade, and social organizations and disintegration by subnational movements that seek to splinter the state.¹³¹

Most organization and political theories tend to explain state behavior either by treating the state as a rational-acting monolith or as a machine-like structure with many competing pieces and parts. New science focuses not on the variables, but instead on the complex relationships and systemic consequences. For the state in the future, balanced relationships will be more important than hierarchical processes based upon reductionism. Instead of trying to fit the ways of the world into existing forms of simplistic governance, the relevant state will need to adapt its form to accommodate complex and fluid worldwide functions.

¹³¹ Arquilla, 87.

2. Non-state actors

As a consequence of greater agility and means for adaptation, non-state actors will continue to grow in power, prestige, and importance in the world. They may even evolve into cyber-nations or otherwise begin to exhibit state-like behavior. Non-state actors depend upon assorted networks (human and electronic) to stay in the game and ahead of competitors. This means playing various actors against each other—people against the state, the rest-of-the-world against other non-state actors, and occasionally the state against other states. Non-state actors still depend upon the loyalty and creativity of their people, especially as complexity creeps into their operations. Networks enable all sorts of new ways for creating and shaping windows of opportunity for their business or cause. Although non-state entities would like to work within and from state-provided safe havens, many will realize the need to provide for their own security, health care, education, infrastructure, standards, and social programs. After awhile, dependence upon (and providing for) *their own* begins to look like the charter for nation-states.

Future citizens may see a return to the models of statehood that existed prior to the Peace of Westphalia. The new global “Cyberlization” will offer endless varieties of national or group identities for non-state actors. In the near-term, the global stage will become far more crowded as new entities vie with the old for recognition, dominance, and validation in the world. The rise of Cyberlizations postulates a world where access to the Global Grid may be more important than the maintaining a nuclear arsenal.

The logical rise of sub-national armies (or security forces) poses significant challenges for all actors. A useful way to think about this problem is the classic guerrilla warfare problem. In guerrilla warfare, the guerrillas compete with the government over control of the people. On the one hand, supportive people empower the guerrillas. On the other hand, government sympathizers will rat on the guerrillas. Since guerrillas are indistinguishable and hide among the populace, the paranoid government will punish people indiscriminately, which drives more people into the guerrilla movement. For the guerrilla, a winning strategy is one that depends not upon a sympathetic population; it requires only neutrality or indifference.

By simply replacing the role of guerrillas with armed non-state actors in guerrilla warfare triad, it is easy to see that the state may find itself in a protracted struggle in which the people make all the difference. Ideology, perseverance, and disciplined action save the day in such struggles.

3. People

As traditional roles for government and business entities continue to change, the roles and expectations of individual will change as well. Paradoxes creep in. While individuals may have more control over their lives, they will suffer significant losses in privacy. Some of this phenomenon can be understood by looking at the lives of famous people. On the one hand they can have the means to go anywhere and do anything they desire, while on the other, to do so entails going out into a world that watches their every move—judging,

demanding, and manipulating. Arquilla explains why individuals are become empowered:

There are two structural reasons why power is shifting away from traditional hierarchies and toward individuals. First, the information processing and filtering roles performed by many levels within traditional hierarchies have become obsolete... Hierarchies need no longer serve as the exclusive conduit of information to the individual. Second is the changing nature of the work force in advanced economies. Information workers generally do not need the structure or control provided by traditional hierarchical organizations, since their jobs require them to innovate and adapt on a daily basis.¹³²

Whether individuals opt to exercise their newfound empowerment or not, more choices will be available to more people. More choices mean less stability, more uncertainty and confusion. People can choose from a worldwide pool to satisfy sundry political, economic, informational, and security needs.

Traditional reliance on the bureaucracy of the state becomes less important as individuals are empowered to act upon his or her own interests. Absent a symbiotic relationship between individuals and the state traditional nation-states become obsolete, abandoned in favor of some new more effective and efficient model. Perhaps the role of the nation-state will devolve to one of simply maintaining the peace and security necessary for a "Netizen" of the new global Cyberlization to function as a citizen of a borderless cyber-state.

¹³² Arquilla, 299.

4. Rest of the World:

The rest-of-the-world perspective is obviously an over-simplification to counter U.S. centrality. Despite the obvious, aforementioned perils associated with global networking, the rest-of-the-world cannot afford to be excluded. Most will strive for inclusion as opposed to risking marginalization. Most will attempt to control the means, mode, and methods under the guise of what Friedman called "glocalizing." Retaining the best parts of culture and national unity will shape national "bandwagoning" efforts. In the end, however, most of the world will decide that global connectivity is a must.

Some states will get a late start so they will contract out connectivity through transnational corporations. This may result in over-reliance on non-state entities that intuitively leads to state-imposed contractual agility. Agility is necessary to allow the state to call the shots by pulling the plug on one contractor in favor of another. This can also raise life-cycle costs. Before long the issue of plug-and-play homogeneity (i.e., commonality) comes up, prudent heads prevail, and then down the slippery slope of global assimilation they will go. The rest-of-the-world will resist change, implement protectionist measures, search for loopholes, and will consequently end up on either the high road or the low road—if only it were that simple.

A two-road world would certainly simplify decision making, but the rest-of-the-world will probably choose high roads, low roads, and all manner of seemingly inconsequential trails in between that would be otherwise overlooked by Americans. As argued in the state section, "either-or" problems will be re-worked

to allow “both.” Cooperation among state and non-state entities and processes may be key. Shades of legitimacy and sponsorship will ebb and flow in response to various fields of competition. Illegal activities will punctuate legal ones as information manipulation becomes art.

5. Conflict

Conflict will come in many ways and many forms, but the reasons for fighting remain. The nature of humanity will not change quickly or easily. Whether for fear, need, or greed—or for power and control, ideology and religion, protection and envy—people will fight. The potential for conflict appears higher than ever in the future. But conflict tends towards the unconventional domain of individuals, organizations, and assorted non-state activity. This is not to say that states will not fight other states, but the implications for state-on-state war become more costly in each of the futures scenarios. When tension erupts, prosperous combatants will turn to creative means—discriminating, surgical strikes designed to minimize collateral damage, assassinations, surrogates, and global policing mechanisms.

Preeminent power will reside in the hands of those entities that can artfully manipulate information and dominate the Infosphere. The reactions and desires of those who want control, or feel slighted for not having it, will allow non-traditional sources to create new armies, new means, and new ways to fight for the information they desire. Movements will form to react to technology controls

and improprieties, when individual rights are forfeited in the interest of controlling information, and where societal interests clash with those of the state.¹³³

Another source of conflict will be along the lines which divide the information-rich (third wave) societies from the information-poor (first wave) societies. It is here at the edges where the various cultures interact that the greatest danger and greatest opportunities may exist. Steve Metz sees the potential for conflict in these areas:

Alvin and Heidi Toffler suggest that strategic revolutions occur when a much broader shift in the method of production changes the entire panoply of human relationships, thus altering not only how militaries fight, but who fights and why they fight...

The need to think broadly and holistically is pressing. In simple terms, the Information revolution is increasing interconnectedness and escalating the pace of change in nearly every dimension of life.¹³⁴

Terrorist actions run rampant in some future scenarios, especially those in which organizations and individuals are constrained.

D. CURRENT ANALYSIS

As a point of reference, it may be helpful to apply the same methodology to a more familiar and tangible scenario—the present. This is problematic because

¹³³ "In sum, to say that peoples got to war for their 'interests' and that 'interest' comprises whatever a society considers good and useful for itself, is as self-evident as it is trite. Saying so means that we regard our particular modern combination of might and right as eternally valid instead of taking it for what it really is, a historical phenomenon with a clear beginning and presumably an end. Even if we do assume that men are always motivated by their interests, there are no good grounds for assuming that the things that are bundled together under this rubric will necessarily be the same in the future as they are today; it being obvious that the things that are considered 'good' for society (and even the meaning of 'society' itself) are at least partly the product of that society's nature, organization, and belief-system. Nor is this merely a point of philosophical concern. The logic of strategy itself requires that the opponent's motives be understood, since on this rests any prospect of success in war. If, in the process, the notion of interest has to be thrown overboard, then so be it." Martin Van Creveld, *The Transformation of War* (New York, The Free Press, 1991), 217.

current analysis carries much more baggage than non-threatening futures. It also highlights researcher biases and raises questions about reality discrepancies. The purpose of conducting this analysis is not to argue the merits of current policies or perceptions. Instead, the purpose is to provide a benchmark for comparison.

1. Government (The State)

The state boundaries have become blurred in today's world. Nothing fits in its original box anymore. Internet connectivity defies most boundaries, resulting in unforeseen cross-pollination, information overload, and rampant cyber-crimes. The problem is, the Internet also presents opportunities for improved education, simultaneous research, socialization, and commerce. The state recognizes that something powerful and chaotic is happening that stands to undermine its authority and control, but most of the big things that have always mattered still matter. If cyber-societies are emerging, why should the state care? People still need to live somewhere, eat, sleep, and pay taxes. Sure, more local issues gain worldwide attention through the power of the press, but if that constitutes the extent of globalism—bring it on. America is a powerful, resilient nation that holds its own in any arena. Legitimate concerns are raised however, when economic prowess is viewed as a function of global perceptions and potentiality. Economic boundaries are no longer as distinct. Internet-based companies throw the market for a loop because they can be based on good ideas and perceptions of worth, instead of tangible property and resources. They come and go seemingly

¹³⁴ Metz, 2.

overnight, then die to be resurrected in new forms. State regulation is not up to the task.

The defining characteristic of government as bureaucratic and hierarchical work against the state's ability to maintain itself as a significant entity in the new world order. Metz explains: "Hierarchies and bureaucracies face serious disadvantages when pitted against unscrupulous, flexible, adaptable enemies. If states are like dinosaurs, networks are like early mammals, still weak but waiting for the time that they will inherit the earth."¹³⁵

States that recognize the significance of the globalization in an ever-changing world market place find themselves in a powerful position, while those not capitalizing on globalization are becoming resentful and violent. With the means to orchestrate costly ripples in the network, quantum physics advises the state to take heed of even the most inconsequential aberrations. Things that start small in an increasingly interconnected world can lead to disastrous results.

When it comes to matters of ineffectual governance, cyber-security, financial accountability, and the American myth, security of the nation-state can become an issue—even for the United States.

2. Non-state Actors

How do the non-state entities affect the future? What will be valued? According to Davenport and Prusak: "In a global economy, knowledge may be a company's greatest competitive advantage."¹³⁶ A small entrepreneurial company is more dynamic. It is flexible due to a more dynamic response to changes in the

¹³⁵ Metz, 14.

¹³⁶ Davenport, 13.

marketplace. Corporations that dominate today are flexible and adaptable. In some areas, organizations that make the most of e-commerce and online information are dominating the world markets.¹³⁷ In situations where technology is not available to everyone, a global bank or unified global business can totally change the face of society. The economic versus political boundaries are blurring.

Multinational corporations, citizen groups, international organizations, and all sorts of legal, semi-legal, and criminal organizations are taking advantage of the newfound access that the Infosphere offers. Dominance comes in many forms, as opposed to the strict weapons control or monetary control of yesteryear. Paying close attention to the shifting alliances between organizations, companies, and nations will behoove any entity trying to gain or maintain dominance.

3. People (society)

Individuals play significant roles in the evolution of the new world order in many ways. Being keyed to information on a 24-hour basis certainly adds to those in the know. Individuals have access to more global knowledge than ever before, thus creating the unmatched need for knowledge workers. However, the availability of the technology creates information "haves" and "have-nots" much like the former moneyed classes of yore. Grass roots political maneuverings become much more relevant as those with the will can and do influence the political structure of the day. Witness the Ross Perot movement for

¹³⁷ Amazon.com is a well-known case in point. The Internet-based company started as a book store, but today it has become a one-stop shopping place for tools, toys, music, etc.

president. Alliances can and will shift constantly with the influx of new materials or ideas.

4. Rest of the World

While moving towards a form of globalization perhaps unprecedented in recorded human history, the world at large is becoming more divided and diverse. Even now one can see the emergence of a global culture developing around the most common denominators of U.S. civilization—blue jeans, fast food, music, technology, and selections from basic Western concepts and ideals. These items and others taken from the across the world, are being spread more and more rapidly by the netizens of the Infosphere.¹³⁸ In effect, at some level everyone in every ring of Cyberlization is being Americanized to some degree. Few places in the world remain untouched—people everywhere emulate selected perceptions of what it means to be an American. The global culture of the Cyberlization stands to clarify the divisions between diverse societies, while affording new opportunities for dialogue and new types of confrontations.

Americans can expect to see both growing acceptances of the “Americanized” world culture and a rise in the twin concepts of local culture and the culture of the individual. This baseline globalization of the world’s various

¹³⁸ We are not the first to use the term, “netizens.” It describes those to whom the Internet is just another tool of everyday living. Netizens use the web and information technology the way others would use an ordinary household appliance. Yet it is more as it also describes the need to be in constant touch with the world via the Net. Increasingly when you travel you will see netizens carrying and using a laptop, PDA, cell phone, and pager. These are primitive compared to what they will carry in the near future. As various means of communication and information converge—first wearable computers and conformal antennas, then nanocomputers—netizens will be able to stay in touch with the rest of the world at all times and anywhere. For them, virtual and physical realities will become equally relevant to their lives.

civilizations will in and of itself lead to conflicts and resentments, as old ways and ideas are discarded in favor of the new and different.

5. Conflict

Conflict today has a traditional feel. Military forces attempt to fight military forces in standard operational patterns. However, as more non-traditional organizations take up violent means to defend whatever becomes the important “real estate”—be it money, land, or information itself, conflict is taking on a more unusual look. Arquilla stresses the importance of cyber-real estate to Americans:

What stands clear today is that information technology has reached critical mass. Information systems are so vital to the military and civilian society that they can be the main targets in war, and they can also serve as the main means for conducting offensive operations.

A second feature of information technology that affects IW is that as the technology becomes cheaper and cheaper, it becomes less and less efficient to control information from a central authority.¹³⁹

Certainly, the means to control the information can be misdirected as well. As information technology becomes cheaper and more available to everyone, technology proliferates, opening vulnerabilities to those who have grown dependent upon the same. Reaction to proliferation controls can be the reason for conflict itself. Who controls the “how” and “what” of the information fray becomes the superpower. Conflict will become muddled as the military adds civil information systems and infrastructure to the target lists. Arquilla explains why:

Today, information systems are so critical to military operations that it is often more effective to attack an opponent's information systems than to concentrate on destroying its military forces directly.

Also, because modern societies are themselves so dependent on information systems, often the most effective way to attack an opponent is to attack its civilian information infrastructure—commercial

¹³⁹ Arquilla, 181.

communications and broadcasting networks, financial data systems, transportation control systems, and so on.¹⁴⁰

E. CHAPTER SUMMARY:

The reality of the future is not unlike that of the past. Information is a key component of every functional society and organization. The fundamental difference is the speed at which one can now collect, process, create, interpret, understand, and disseminate the information for good or ill. The key users and controllers of that information can directly and indirectly affect the course of human events, forcing their will on others, or protecting themselves from the effects of others. The true currency of power will no longer reside in traditional weapons of mass destruction but in the access, use, manipulation, and destruction of information—therein “weapons of mass effect.” The targets are not just the technology surrounding information, but also the actual brokers, inventors, developers, and interpreters of the data upon which all information, and ultimately all knowledge is based.¹⁴¹

¹⁴⁰ Arquilla, 177.

¹⁴¹ “Power will flow not simply to those who are the most wired, but to those who are the most creative at bringing together firms, governments, capital, information, consumers and talent in networked coalitions that create value. Some will be corporate-led coalitions to create commercial value. Some will be government-led coalitions to create geopolitical value. And some will be activist-led coalitions to create, or preserve, human values—such as worker rights, human rights or environmental preservation.” Friedman, 201.

-

This page intentionally blank.

V. CHANGE RESULTS

A. OVERVIEW

The four alternative futures presented in Chapter III and analyzed in Chapter IV present a perplexing and disquieting superstory for traditionalists. It seems clear that significant and paradoxical societal changes are underway as a result of the embryonic Information Age. The economic dynamic seems bound to be played out more-and-more in the global arena. Yet this is an arena based upon global perceptions—and where truth changes ten times a second.¹⁴² The players in this arena can no longer be distinguished from the audience, and like the days when Romans would gather in a coliseum to watch gladiators fight on the arena floor, winners and losers can be largely determined by the cheers and jeers of the masses. It is becoming harder to determine fact from fiction, the players from those being played, and fleeting sympathies from stable alliances.

This study concentrated on answering three key questions. Once again, they are: 1) How will societies change in response to the Information Age? 2) What will be valued and thus become points of contention between states and non-state entities? 3) How will these changes affect the US military? Implied within these three questions, there are other statements about change that came to the fore during our analysis. The first questions deals with the notions of societies and the Information Age. A society suggests a social group or communal identity that is based upon living in companionship with others. While the Information Age characterizes a period in our evolution that is different than before due to the

¹⁴² GEN Schoomaker often says we are now in a world where there is no truth...and reality changes ten times a second. This is a world in which information is a very powerful tool.

speed, access, and connectivity of actors within a virtual network. The network defies boundaries of all sorts—traditional discriminators between individuals and actors of all types, organizations, political bodies, societies, nations, and global interest groups. The network allows for the rise of virtual societies, free from geographic or other time and space constraints. The second question legitimizes non-state actors by acknowledging their influence in a geopolitical contest that heretofore focused exclusively upon state actors. Here again, the Information Age changes the rules and lowers the price of admission to a level where individuals can influence the behaviors of states as well as collections of states. Everyone with access to the network has the power to independently crosscheck sources, verify information, and conduct their own research. The Information Age is an environment comprised of perceptions and illusions about what is real and important. The third question asks about the effects of change upon the military. The military is a particularly unique institution because it is vitally subordinated to the will its elected civilian leaders while safeguarding the fundamental values of American society. The military struggles today to be prepared for any future contingency, accepting the inevitability of change in the name of maximizing relevancy and capabilities. The military must therefore lead the quest for meaningful change, blazing the trail ahead of emerging and enigmatic societies it will someday serve and protect.

Most of the bottom-line conclusions in this study are not surprising. There is now, however, more than intuition upon which to support the belief that the Information Age is compelling pervasive and uncontrollable changes that will

result in a dilemma for the United States as nation and the institutionalized national representatives—the government and military. It seems improbable in the Information Age, which empowers networked individuals and organizations at the expense of hierarchical government actors, that the nation-state will remain as powerful and preeminent as it is today. That is not to say that the nation-state will be weak or irrelevant, but the nation-state will continue to weaken in comparison to supra-national and sub-national entities of all kinds. As sworn protectors of American society, values, rights, and freedoms, the United States government and military seem headed for a particularly awkward and critical juncture where the United States as a nation may not be represented by their institutions. What will it mean to be an American in the future given the following trends and pressures?

B. SOCIETAL CHANGE (TRENDS)

Where are we today? Which of the futures best describes the world, as we know it? Where are we headed in the future? These are among the first questions everybody asks with respect to the four alternative futures. Even though the four futures are purposeful extremes, and not meant to depict any extension of current trends and dynamics, there are identifiable and real similarities in each of the worlds that make any of them plausible futures scenarios.

1. Global will win over local.

After analyzing the interplay among the drivers within each of the alternative futures and from the different perspectives of social, political and new sciences, resistance to change is clear. Information sharing and networking logic results in a blurring of all previous distinctions between individuals, organizations, nations, and other sorts of protected systems.¹⁴³ At every level, those who stand to lose their exclusive hold on power and knowledge will resist change.¹⁴⁴ Against their free will and better judgement, most will transform to accommodate a global economics perspective.¹⁴⁵ Globalism acts like quicksand. Everyone knows that it is there, but few realize its true nature. Globalism necessarily relegates any viable business and institution to a state of uncomfortable inclusion, a breathless pace of relentless competition, and a mixed sense of excitement and vulnerability.¹⁴⁶ There will be severe ethical and moral quandaries as economic

¹⁴³ "That's why I define globalization this way: it is the inexorable integration of markets, nation-states and technologies to a degree never witnessed before—in a way that is enabling individuals, corporations and nation-states to reach around the world farther, faster, deeper and cheaper than ever before, and in a way that is enabling the world to reach into individuals, corporations and nation-states farther, faster, deeper, cheaper than ever before. This process of globalization is also producing a powerful backlash from those brutalized or left behind by this new system." Friedman, 9.

¹⁴⁴ "This explains why, in some countries, the strongest backlash against globalization comes not just from the poorest segments of the population and the turtles, but from the 'used-to-bes' in the middle and lower-middleclasses, who found a great deal of security in the protected communist, socialist and welfare systems." Friedman, 337.

¹⁴⁵ "As Jessica T. Mathews writes, 'National governments are simply losing autonomy in a globalizing economy. They are sharing powers—including political, social, and security roles at the core of sovereignty—with businesses, with international organizations, and with a multitude of citizen groups, known as nongovernmental organizations.' In a sense, all states have taken on some of the weakness, vulnerability, and lack of control that traditionally characterizes small states. As the ability of the state to control its economy fades, it is likely to become weaker across the board, thus leading to a major, perhaps revolutionary transformation of the global security system." Metz, 8.

¹⁴⁶ "In a globalized economy, the ability of governments to control and manipulate the economy is diminished, thus taking away one of the prime tools for quelling dissent and rewarding support." Metz, 55.

competition is played ruthlessly on a global scale. Without global laws, courts, and representation, players will have to decide which practices to follow while realizing that there will always be others who will exploit the areas deemed illegal, immoral, or unethical.

2. The state will represent and include diverse societies everywhere.

The Information Age permits people to identify with social groups that are not necessarily in the same geographic place. The network, as Michael Vlahos calls this "new venue for human interaction," allows people to congregate in virtual cities and societies that transcend physical geography. The network, in fact, according to Vlahos, will become our "primary human geography."¹⁴⁷

3. There will be greater disparity between the "haves" and "have-nots."

Access to information technologies will be the prerequisite and key enabler for individuals, organizations, and nations to seize economic and political opportunities. This will not be true for everyone, everywhere. The "haves,"—who will be competing at breakneck speed, will leave those without the means or opportunity to participate in virtual markets, societies, and intellectual debates—the "have-nots"—farther and farther behind. Despite the marketing pressures, desires, and humanitarian attempts to include the "have-nots," the pace of change will be too much for those who are already entering the Information Age at a societal disadvantage. Although technology will proliferate worldwide, technologies alone will not be enough to empower and educate many disadvantaged individuals, organizations, and national entities.

¹⁴⁷ For a complete discussion of the network, read "The Network and the Navy", an unpublished paper by Michael Vlahos.

4. There will arise an emissary class.

To accommodate these disparities, organizations and nations will rely on an assortment of cultural emissaries.¹⁴⁸ These emissaries, or intermediaries, will thrive at the societal fringes. They will be needed to translate between agents, agencies, and worlds.

5. There will be more opportunities for discontiguous social evolution.

While many societies will be left behind in the confusion of the Information Age, there will be those who skip the various stages and norms of social evolution to arrive on the world scene as bona fide, capable actors. A recent report on the digital divide claims that the vast majority of people rushing to the Internet today make less than \$20 thousand/year. Economic opportunities will be available to all who care to participate in the virtual markets, and if recent history is an indication of what lies ahead, then many poor will become rich in a relatively short time.

6. Exclusionary biases will not last.

Even though there will be a pressure and business logic to include everyone in the global economy, individuals, societies, and national governments will try to exclude particular individuals and groups. These exclusionary biases will not last because information defies boundaries and the network will find a way to conduct business, share ideas, and influence global conscience or perceptions. Once the

¹⁴⁸ "In today's hyperspeed, enormously complex globalization system, most of the information needed to answer most of the problems now rest in the hands of people on the outer edges of organizations, not at the center. And if your country or company has not democratized decisionmaking and deconcentrated power to enable these people to use and share their knowledge, it is going to be at a real disadvantage." Friedman, 201.

network is in place, it will be very hard—if not impossible—to isolate parts of it from the rest.

C. POINTS OF CONTENTION (VALUE)

In the future, humans and societies are valued above anything else and therefore present logical points of contention. After all, humans are needed to provide the context and meaning for information. Guerilla warfare is an age-old example of struggle for control of people and their societies. In guerilla wars, the insurgents battle with the government to control the populace. In the future, sub-national and supra-national societies will vie with national governments for similar control. Virtual societies will revolt over seemingly inconsequential issues that will come out of nowhere to overwhelm and affect national agendas.¹⁴⁹ What changes in each world are the societies and organizations with which people identify themselves. Some people will think globally and act locally; others will think locally and act globally.¹⁵⁰ Many people will identify more with their corporate policies, regulations, norms, and culture than they will with their national identity. This may result in their willingness to join a private army instead of opting for national military service. It will be less and less clear where the action is in various and disparate societies. In many cases, action and value will be assumed. Seemingly inconsequential actions in one corner of the globe

¹⁴⁹ "What Martin Libicki calls 'the globalization of perception'—the ability of people to know what is happening everywhere—means that obscure conflicts can become headline news." Metz, 56.

¹⁵⁰ "It is true that globalization today is not global, in the sense that we are still a long, long way from a world in which everyone is online (although 300,000 new users join the Internet each week). But globalization is global in the sense that almost everyone now is feeling—directly or indirectly—the pressures, constraints and opportunities to adapt to the

may have tremendous effects elsewhere—and vice versa.¹⁵¹ This will result in a process of valuation based upon worldwide reports, allegations, perceptions, and deceptions.

National ideology will suffer. States that force-feed a compelling national ideology will risk internal backlash against what may be perceived as brainwashing operations. Intelligent and concerned citizens in the networked world will be able to easily contrast and compare their government's messages against views from the rest of the world.¹⁵² Perceptions about governments will also be colored by beliefs that local and national political processes are vulnerable to manipulation from foreign entities. In the Information Age, the place where people work and live may not be as important as which societies they choose to belong to. In the global business arena diversity is courted and rewarded. This makes for some interesting societal pressures and allowances.¹⁵³ Pertinent and timely information will give individuals, organizations, and nations a competitive edge so competitors will put together dynamic teams that can recognize opportunities and value while performing

democratizations of technology, finance and information that are at the heart of the globalization system." Friedman, 73.

¹⁵¹ "In sum, we need to be concerned about the condition of our planet as a whole not simply because we face a new agenda of security risks such as global warming and mass migration, but also because these phenomena could interact with and exacerbate older threats to international stability such as regional wars, hostage-taking, and closure of searoutes. While the newer transnational forces for global change appear to be on a different plane from the traditional concerns of the nation-state...they constitute additional causes for social conflict." Paul Kennedy, *Preparing for the Twenty-First Century* (New York, Vintage Books, 1993), 347.

¹⁵² "As the twenty-first century approaches, therefore, the peoples of the earth seem to be discovering that their lives are ever more affected by forces which are, in the full meaning of the world, irresponsible." Kennedy, 64.

under pressure. People who can scan dissimilar disciplines and keep their team ahead or at least abreast of the pace of change will be highly valued and rewarded. As difficult as it will be to protect a given strategy, knowledge base, and ultimately—competitive edge, actors at all levels will try to do so for as long as they can. This will result in various secure technologies, trusted agents, deceptive campaigns, restricted access, and insistence upon loyalty. Loyalty will be expensive. The most talented people will receive generous offers from competitors at all levels.

In a global, multicultural environment, rigidity and likeminded approaches to problems can spell disaster. On the other hand, with diversity comes friction between the masses, tribal groups, and super-empowered individuals. When friction leads to conflict, count on paramilitary skirmishes at the sub-national levels—between all sorts of irregular forces. Legal and illegal sub-national actors alike will attempt to use the national infrastructure and services to best serve their purposes. This will provide the impetus for intrastate conflicts resulting in confused jurisdictional and turf wars.

Of course, the “have-nots” will battle the “haves”. Not every “have-not” society will have fallen behind for lack of education, technology, resources, or want of opportunity. Some will revolt against modernity and change for fear that it violates tradition, religion, or some other basis for meaning in their lives. The “haves” will often attempt to indoctrinate, educate, and assimilate them into their own societies. Other times those with the means will subjugate troublemakers

¹⁵³ "I believe the most important filter is the ability to 'glocalize.'...The whole purpose of glocalizing is to be able to assimilate aspects of globalization into your country and culture in

with the use of force. Future societies and sub-national groups will complicate rules of engagement as U.S. nationals double as sub-national or supranational actors. Again, the unavoidable blur between policing actions, perceived threats to national security, and state-sponsored terrorism will require new procedures, structures, and allowances.

D. CONSEQUENCES

The next chapter offers specific recommendations in response to many of the most obvious consequences associated with any or all of the future scenarios. This section draws upon the previously mentioned trends and points of contention to imply overarching consequences. All variations of the future urge organizations and individuals to proactively change industrial-era mindsets, structures, and procedures.¹⁵⁴ The scenarios warn societies to prepare to deal with more and more excluded peoples everywhere. The Information Age compels American strategists to break from U.S.-centricity and to think globally due to the ubiquitous nature of the network.

In future warfare, military leaders must unbound their visions of battlefields and battlespaces—there are potential combatants everywhere with the means to reach affect systems and perceptions. This means that military professionals need to better appreciate the complexity and diversity of infinite target sets.

a way that adds to your growth and diversity, without overwhelming it." Friedman, 295.

¹⁵⁴ "People will learn that unlike in the Industrial Revolution, countries today don't have to be prisoners of their natural resources, geography or history. 'A nation's wealth is [now] principally of its own collective choosing. Location, natural resources and even military might are no longer decisive. Instead, how a nation and its citizens choose to organize and manage the economy, the institutions they put in place and the types of investments they individually and collectively choose to make will determine national prosperity.'" Friedman, 197.

Current leaders must posture future leaders and institutions to make possible decision superiority and seize the opportunities brought about by change.¹⁵⁵

While none of the alternative futures disputes the need for armed forces in the future, the conflict arena has changed significantly.¹⁵⁶ Admiral Cebrowski depicted this new battlefield on a slide that showed the traditional nation-state being pulled apart by globalism on the one hand, and by newly empowered individuals and organizations on the other.¹⁵⁷ He argued that the new areas of national conflict will tend toward the realm of individuals and organizations. If this is true, and this study supports that belief, then the military must adapt its organizations, weaponry, doctrine, and training to win at a new "game" and on new fields of competition.

¹⁵⁵ Authors are indebted to General Schoomaker for his phrase, "seize the opportunities brought about by change."

¹⁵⁶ "Politics must continue; war cannot. That is not to say that the role of the warrior is over. The world community needs, more than it has ever done, skilled and disciplined warriors who are ready to put themselves at the service of its authority. Such warriors must properly be seen as the protectors of civilisation, not its enemies. The style in which they fight for civilisation—against ethnic bigots, regional warlords, ideological intransigents, common pillagers and organized international criminals—cannot derive from the Western model of warmaking alone. Future peacekeepers and peacemakers have much to learn from alternative military cultures, not only that of the Orient but of the primitive world also. There is a wisdom in the principles of intellectual restraint and even of symbolic ritual that needs to be rediscovered. There is an even greater wisdom in the denial that politics and war belong in the same continuum." John Keegan, *A History of Warfare* (New York, Vintage Books, 1993), 391.

¹⁵⁷ VADM Cebrowski's *Navy After Next* briefing credits Dr. Thomas P.M. Barnett, Professor, Naval War College.

This page intentionally blank.

VI. RECOMMENDATIONS

A. GOVERNMENT STRATEGY

The world is changing and everyone is looking to the United States for leadership, coping mechanisms, or simply hope. Yet, the United States appears to be exercising damage control mechanisms in response to the perturbation and chaos, rather than taking an opportunistic and optimistic perspective of the future. Such a philosophy seems warranted given the pace of change and mythological empowerment of citizens in the Information Age. Having overcome tremendous trials and tribulations to arrive at the enviable mantel of world leader, America must now look ahead in order to develop a compelling vision and sustainable ideology. Perhaps the present-day American myth can endure the divergent economic, technological, and political pressures that consort with Information Age societies—but today a betting man would not assume so. In light of this reality, there are innumerable options that merit serious consideration by America's leaders and assorted vocal minority. Some—not all—suggestions follow:

1. Do not take American ideology for granted—tend to the American myth.¹⁵⁸

There must be more to being an American than free-market capitalism, democracy, and the Bill of Rights. Long-term prosperity and peace will erode

¹⁵⁸ "The Big Change he (Michael Vlahos) writes of is the explosive transformation of society that is being wrought by the elimination of barriers between people across the world by the Internet. Everything about what is taken for granted today as 'daily life' will change, from commercial transactions, working habits, commuting, to the very notion of employment...As millions of Americans find themselves in the fearful, rollicking slide of Big Change, stripped of old meaning, they will demand new meaning: What is my status in society? How do I belong? What is my worth? And the inability of the entrenched, self-preserving political and military elites to answer those questions, or even to understand why they are being asked, will render them irrelevant.

national identity. Nonetheless, there will plenty of opportunities for Americans to band together in order to overcome worldwide adversity. Consider an ongoing national teambuilding effort.

2. Recognize schizophrenic national policies that turn away the tired, huddled masses...yearning to be free...¹⁵⁹ Diversity and change have long been America's strength. The answer may lie in mandatory government duty for all (to include education and indoctrination) as a prerequisite for citizenship and services. This may be the key to getting Americans to take ownership of a sustainable national ideology—a new American Myth.¹⁶⁰

3. Considering the widespread potential for deception campaigns, the government must accept the role of truth-teller. This will require a proactive posture and apolitical information campaigns. The perception of information control or political spin will erode trust and the public's faith in such an undertaking. While some may argue that this is the purview of the press, the government, by contrast, will not be in the business of selling news.

They will be replaced." James Adams, *The Next World War: Computers Are the Weapons & the Front Line is Everywhere* (New York, Simon & Schuster, 1998), 307.

¹⁵⁹ "Since it cannot bear every burden, the United States must find new ways to join with other capable and like-minded nations. Where America would not act itself, it retains a responsibility as the leading power to help build effective systems of international collaboration. America must therefore overcome its ambivalence about international institutions and about the strength of its partners, questioning them less and encouraging them more." The United States Commission on National Security/21st Century "Seeking a National Strategy: A Concert for Preserving Security and Promoting Freedom" (Washington, D.C., National Strategic Studies Group, April 15, 2000), 6.

¹⁶⁰ "Myths are a particular type of story. James Robertson, author of *American Myth*, *American Reality*, offers the best definition I've seen: Myths are 'the way things are' as people in a particular society believe them to be; and they are the models people refer to when they try to understand their world and its behavior. Myths are the patterns—of behavior, of belief, and of perception—which people have in common. Myths are not deliberately, or necessarily consciously, fictitious." Schwartz, *The Art of the Long View*, 41.

4. Representatives of the government must be available and responsive to public needs at all times.¹⁶¹ This will necessitate abandoning the "good enough for government work" mindset, adopting around-the-clock work schedules, accepting virtual governance, relaxing hierarchical processes and industrial-era conformity methods, and institutionalizing innovative change agents.

5. National and local taxation will become a contentious issue. As people purchase more worldwide goods and services, the taxes must adapt. Current laws and treaties governing taxes, duties, and tariffs do not adequately address Internet-based trade and commerce. As the population becomes increasingly transient and as goods and services are provided by activities, agencies, and corporations outside the jurisdictions of traditional geographically-based political entities, various political entities (local, regional, and national) will fight for the right to collect taxes and other revenues. There is a danger that so many political entities may claim this right that the venture of doing business via the Net may become counterproductive. This will require a fair and equitable plan that considers the transient character of future societies.

6. Although the government officials deserve praise for protecting the rights and liberties of Americans to date, the proliferation of weapons of mass destruction and weapons of mass effect may justify new laws, enforcement methods, and jurisdiction considerations. Criminals and other national

¹⁶¹ "...[T]he more widespread the Internet becomes in the lives of citizens, the more they are going to put pressure on their governments and legal systems to operate at Net speed. More and more, citizens will expect the same ease of service from the United States of America as they get from America Online. To put it another way, the more people want government to become as quick and efficient as Amazon.com, the more government has to operate like Amazon.com." Friedman, 196.

adversaries will continue to exploit artificially imposed boundaries and turf differences.¹⁶² How much exploitation will America's citizens tolerate in the future before they resort to other means of protection to include private armies and vigilantes? Steve Metz argued the need for a new paramilitary organization:

As the debate within the United States over the use of the military to counter gray area enemies intensifies in coming years, creation of an American national gendarmerie should be considered. Such an organization could combine elements of the military, the intelligence community and law enforcement agencies like the Drug Enforcement Agency and Federal Bureau of Investigation. It could form its own alliances with similar security forces around the world and operate more effectively against gray area enemies in an interconnected security environment and globalized economy.¹⁶³

7. The Information Age makes governance harder and more complex.

Constituents can contrast and compare societies and consequently their expectations are higher. Considering the increased transparency of future operations, everyone should realize that perceptions matter—and they will change faster and more often than ever before. Perception management therefore cannot be ignored, delegated, or underestimated. Metz explains: "A defining feature of the information revolution is that perception matters as much as tangible things. This will certainly hold for informal warfare. Future strategists

¹⁶² "This having been said, however, the line between the military and civilian sectors is blurring, raising prickly new questions about who exactly is responsible for what. The strength of the United States depends as much on its civilian communications and information infrastructure as it does on its purely military capability. Without this infrastructure, its economy would stutter to a halt very quickly. But the civilian economy's near-total dependence on computers, telecom systems, and electronics creates strange new vulnerabilities as well. The biggest boundary blur of all is that between 'foreign' and 'domestic,' so that a new term has been invented: 'intermestic.'" Arquilla, 18.

¹⁶³ Metz, 66.

will find that crafting an 'image assessment' or 'perception map' of a conflict will be a central part of their planning."¹⁶⁴

B. MILITARY STRATEGY

Today the US military supports a principally economic national security strategy of engagement and enlargement—engage globally and enlarge the opportunities for American businesses. The current national military strategy can be summarized in the mandate: shape the world, respond to crises, and prepare for the ultimate challenges. In the future these strategies will remain relevant and useful, however they will require qualitative reinterpretation and operational honing.

General Schoomaker is known to espouse the need to reprioritize the instruments of national power in the Information Age. To paraphrase him: In the past, information was used to punctuate the military paragraph (as sort of an afterthought); in the future, military operations will have to be the (appropriate and precise) punctuation on the national information paragraph.¹⁶⁵ In light of the lessons learned from the FCWG's alternative futures, this may mean conducting intricate and precise missions against individuals or organizations at the time and place where they will produce a necessary, surgical effect.¹⁶⁶ Arquilla foresees: "The Information Warfare concept will require highly integrated, holistic

¹⁶⁴ Metz, 57.

¹⁶⁵ Thanks to GEN Peter J. Schoomaker, USCINCSOC, for this perspective on information and the military.

¹⁶⁶ "Today, assassination of enemy leaders outside of declared war is proscribed by presidential directive. But as the technology to target enemy elites becomes available, Americans (and any others who develop a postmodern military) may be forced to rethink the ethics of using it. Future armed conflict may no longer pit one society against another, but one leadership cadre against another." Metz, 74.

employment throughout the policy/tactics/technology spectrum of perspectives which must exceed anything our current military culture and structure has ever demonstrated to date."¹⁶⁷

Conflict and competition will be continuous, relentless, and worldwide. In this sense, responding to crises in today's fashion would be inadequate, irrelevant, and archaic. Shaping takes on a greater significance, requiring strategic-minded forces with a far greater appreciation for the consequences of "flawed or missing punctuation."¹⁶⁸ Such forces will probably not be as homogenous as the military is today. Metz sees the need for a new sort of heterogeneous team: "Successful militaries in the 21st century will thus be those which create a seamless web with nonmilitary organizations and agencies designed, in part, to anticipate second and third order effects."¹⁶⁹ The speed of operations will require broader authorities for action better-informed combatants. In addition to requiring smarter people, our weapons will have to be smarter and more discriminating. The world will sit in judgement as the Information Age shows them how, when, where, and to what extent force is applied in the name of national interest.

Not everything will have learned anew, some old strategies may find new applications. Steve Metz thinks guerilla warfare may still apply: "...[I]f insurgency is seen more broadly as protracted, asymmetric warfare waged by an

¹⁶⁷ Arquilla, 224.

¹⁶⁸ "Does our society want to be the sort that is adept at the degrees of control of information that some of the more enthusiastic advocates of Information Warfare seem to presume? Advocates of Information Warfare must discipline themselves to assure that the overall concept—or any particular aspects of it, even those under cover of heavy security classification—do not conflict with or exceed the imperatives of the national will and the crucial bond of trust between people and their government. The loss of this trust would obviously be the greatest Information Warfare disaster that can be imagined." Arquilla, 223.

organization with a strategic perspective, then the chances are that it will mutate, reemerge and pose challenges to American allies in coming decades. Just as in the 1960s and 1980s, the future U.S. military will have to rediscover counterinsurgency and relearn the lessons of the past."¹⁷⁰

C. TOPICS FOR FURTHER STUDY

This study has tried to emphasize that when it comes to studying the future, the questions are more important than the answers, the process transcends the product, and predictions usually amount to little more than self-deception. Many people see these sorts of statements as meaningless fluff, providing little value to those who deal with the bureaucratic processes and political realities that control competition and the allocation of scarce resources. Few would argue that even uninformed action is praised in lieu of academic pontification. For sure, the pace of Information Age change is breathtaking and relentless, so why study make-believe worlds? It is both astounding and convincing to see how chaotic situations become clearer when planners have powerful conceptual tools at their disposal, recognize familiar patterns as a result of having considered similar circumstances, and consequently speak with foreknowledge about what needs to be done.

In many ways, more than half of the battle lies in setting up the problem. This means that leaders should invest heavily in the intellectual capital necessary for approaching tomorrow's complex problems. When planners are asked to prioritize long-range investment strategies, without fail, education and training

¹⁶⁹ Metz, 104.

¹⁷⁰ Metz, 58.

tops their lists. In reality, though, short-term priorities consistently beat out the long-term ones. It will not be enough to outsource the answers to the following research topics, participation in the process makes all the difference in the world.

1. The FCWG found electronic brainstorming to be a powerful and rewarding technique for accomplishing working group business. The software permits simultaneous and anonymous collaboration to take place in a very short period of time. Working groups, networking, and empowered subordinates seem to be the ways organizations will function in the Information Age. Even the military, a tradition-bound hierarchical organization, is catching on. A useful study would be one that tries electronic brainstorming in various organizational types and assorted processes to draw conclusions about ways to improve decision making, empower knowledge workers, and challenge organizational culture.

2. This study concludes that widespread, continuous competition and conflict will characterize the future. How can information be applied to resolve and mitigate conflict? This is an important question that requires a sophisticated appreciation of the power of information with respect to emotionally-charged humans. Before, during, and after conflict—does the value of information change in each of these scenarios? What can be done from afar versus what needs to be done within the conflict area?

3. Some people cannot accept futures scenarios without showing a notional events timeline that starts with the present to get to alternative futures. The FCWG alternative futures have no such accompanying events. An enlightening research project would involve fleshing out these scenarios by correlating known

and likely events to establish probable checkpoints while orienting the "futures roadmap".

4. This project was not concerned with legitimizing alternate futures as a method for understanding change at all levels. An interesting research project could be constructed to compare the long-range planning results of similar organizations with different processes to determine whether linear planning outperforms nonlinear visioning based upon alternative futures.

5. The most difficult part of this study required understanding perspectives on behalf of the rest of the world. A recent book by two senior Chinese colonels, *Unrestricted Warfare*, emphasized the folly of applying U.S. mirror-imaging to others who clearly do not perceive world events in the same way. Regional experts, allies, and recent immigrants could conduct a similar alternative futures analysis on behalf of the enigmatic rest of the world. Considering the effects of globalism, such a study would be invaluable. Is Friedman right about the Golden Straitjacket?¹⁷¹

¹⁷¹ See Friedman, 104-105.

This page intentionally blank.

APPENDIX-

The following charts contain the raw analysis of each alternative future and for comparison, Table 8 applies the model to the current reality (the world today).

- **Table 4. Cyberland Analysis:** (Hegemonic Economy, Distributed Technology, Sub-national Politics).
- **Table 5. World, Inc. Analysis:** (Global Economy, Constrained Technology, Sub-national Politics).
- **Table 6. Bladerunner Analysis:** (Global Economy, Distributed Technology, Sub-national Politics).
- **Table 7. Present Future Analysis:** (Hegemonic Economy, Constrained Technology, Supranational Politics).
- **Table 8. Current Analysis:** (Current Economy, Current State of Technology, and Current Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
SOCIAL SCIENCE					
ORG THEORY:					
MODEL I	<ul style="list-style-type: none"> - Want businesses and people dependent upon the state - Guarded control: Cyber-police, Regulate & tax UBC - Regulate and Control "state" info 	<ul style="list-style-type: none"> - Maintain freedom, get gov't to provide safe haven - Appear as a team member w/state while attempting to maneuver - Limit gov't involvement in business - Stay out of courts—negotiate instead 	<ul style="list-style-type: none"> - Play both sides, push for fair competition - Demand gov't regulation for quality control - Undermine gov't attempts to regulate prices on goods and services - Avoid casualties, use gov't to protect interests 	<ul style="list-style-type: none"> - Strive for inclusion, side with winner(s), resist marginalization - Develop networks - Use army to protect Cyber-availability for you 	<ul style="list-style-type: none"> - State vs. non-state (prefer nonlethal) - Shape and Control)
MODEL II	<ul style="list-style-type: none"> - Parcel out responsibility - Control through court system 	<ul style="list-style-type: none"> - Create own armies, legal team key, - Network subcomponents - Control info via LAN (IT security) 	<ul style="list-style-type: none"> - Expect certain behaviors, - Rise of virtual special interest groups - More societal rules and regulations - Shifting alliances 	<ul style="list-style-type: none"> - Network, maintain army - Alliances - Attempts to protect culture and economics - International organizations to establish controls/laws 	<ul style="list-style-type: none"> - State vs. State - Guarding, controlling information flow and versions of "the truth"
MODEL III	<ul style="list-style-type: none"> - Compete for societal controls (people) - Cut UBC a break 	<ul style="list-style-type: none"> - Network, secure LAN - Avoid gov't, buy gov't support - Want people to be neutral - Shifting alliances; leads to buying/selling of companies - Rise of the "gray market" 	<ul style="list-style-type: none"> - Rise of special interest groups - Shifting alliances, easily swayed - Non-monolithic society - Cultural affiliates place demands on gov't and corporations 	<ul style="list-style-type: none"> - Appear to preserve culture, align with counter-culture entities 	<ul style="list-style-type: none"> - Shape info flow around versions of truth - Surrogates - Shadow war against UBC & other gov't controls - State vs State conflicts to control economics & politics

Table 4. Cyberland Analysis: (Hegemonic Economy, Distributed Technology, Sub-national Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
INFO THEORY					
MESSAGE	- Economic, political	- Economic	Local economic, politics	Seek commonality	- Fight for limelight and influence
MEDIUM	- Global	- Global electronic, but manipulated	- Global special interest	- Common	- Invasive
INFOSPHERE	- Global, but controlled	- Available globally - Netted and sub-netted around subnational politics	- Customized	- Common architecture	- Control - Backlash against common architectures
SOCIETY	- Conventional	- Virtual—new societies encouraged and catered	- Encouraged, courted	- Homogeneity	- Backlash
POLITICAL SCIENCE					
RATIONAL ACTOR	- Preserve state - Marginalize non-state actors	- Band together for effect (act state-like)	- State Representation	- Preserve accountable governments	
STRUCTURAL REALISM	- Resist interdependency - Ignore non-state actors - Control cyber borders	- Act big, powerful - Distributed		- Geopolitical differences remain, but new linkages confuse the structure	- Police action vs. UBC
SYSTEMS	- Control geographic and cyber-borders, reduce number of actors - Preserve the state - Marginalize non-state actors	- Preserve the state in so far as it provides security for business - Robust alliances, strive for equilibrium - Maintain UBC power relative to other actors	- Individuals potentially as powerful as organizations - Treat all parts as potential threats	- Resist globalism and global political structures	- Intrastate conflict to prevent secession - If UBC dies...must be replaced

Table 4 continued. Cyberland Analysis: (Hegemonic Economy, Distributed Technology, Sub-national Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
GLOBALISM	<ul style="list-style-type: none"> - Don't want it (compelled by economics and political considerations) - US seeks to expand to Int'l markets but resists others controlling (attempting to control) our economy 	<ul style="list-style-type: none"> - UBC seeks to expand 	<ul style="list-style-type: none"> - Individuals will seek global villages 	<ul style="list-style-type: none"> - Want free markets, but without losing market share - Resist globalism except where beneficial 	<ul style="list-style-type: none"> - Culture vs. market - Ideological erosion
NEW SCIENCE					
QUANTUM PHYSICS	S<>UBC S<>People S<>ROW S<>Non-State S<>SN S<>People S<>UBC	N/S<>UBC N/S<>People N/S<>ROW N/S<>S N/S<>SN N/S<>People N/S<>SN			<ul style="list-style-type: none"> - Conflict on all fronts
WEAK BOND STRONG BOND					
CHAOS THEORY	<ul style="list-style-type: none"> - Decreasing state strength and influence 	<ul style="list-style-type: none"> - Strong alliance between state and UBC - Weak alliance w/people - Non-state actors assume some state roles 		<ul style="list-style-type: none"> - Some economic winners, but traditional state loses 	<ul style="list-style-type: none"> - State losing power to all; non-state vs. people; non-state allies with state
SELF-ORGANIZING SYSTEMS	<ul style="list-style-type: none"> - Big losers 	<ul style="list-style-type: none"> - Begin looking and acting like states 	<ul style="list-style-type: none"> - Winners 		
Conclusions: 2. State control will erode, all others increase at expense of state 3. All alliances temporary 4. More police actions than state vs. state conflict 5. Competition is relentless and on all fronts					

Table 4 continued. Cyberland Analysis: (Hegemonic Economy, Distributed Technology, Sub-national Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
SOCIAL SCIENCE					
ORG THEORY:					
MODEL I	<ul style="list-style-type: none"> - Guarded, secretive - Develop and control technologies - Focus on "rich" & business vs poor - Decreasing environmental concerns - Deal w/non-state actors 	<ul style="list-style-type: none"> - Larger, the better - Maintain good relations with Global Bank - Act responsibly 	<ul style="list-style-type: none"> - Work to be included among "haves" - Align with powerful non-state actors - Attempt to regain political control 	<ul style="list-style-type: none"> - Invest in transnational corporations with the means to develop technologies - Maintain global outlook - Attempt to regulate Corps in borders (taxation, etc.) 	<ul style="list-style-type: none"> - Tech espionage - Transnat'l entities clash with state sponsors - Corporate threat for dominance of people & politics - People vs corporations - People vs government
MODEL II	<ul style="list-style-type: none"> - Bureaucratic, elaborate controls - Form organizations to deal w/global economies & corporations - Organizations necessary to police the technology (Patent Office, etc.) 	<ul style="list-style-type: none"> - Complex and diverse corporations - Trust only insiders - Focus on profit vs people and work conditions 	<ul style="list-style-type: none"> - Become integral parts of transnational corporations - Few will appreciate the enormity - Rise of unions (strength in numbers) 	<ul style="list-style-type: none"> - Don't rock the boat, go along to get along - Int'l agencies focus on commerce to assure products and services for the states and elite 	<ul style="list-style-type: none"> - "Have nots" and others left out will lash out
MODEL III	<ul style="list-style-type: none"> - Appeal to key players to support the government - Make deals - Federal Reserve regulates global economy - Control of people 	<ul style="list-style-type: none"> - Insert gov't insiders to leak information and secure tech favors - No focus on environment 	<ul style="list-style-type: none"> - Everybody is considered to have an agenda - Many on the take - Unions negotiate for the people 	<ul style="list-style-type: none"> - The rule is that there are no rules. - Favors are the way of the world 	<ul style="list-style-type: none"> - Individuals will defect from deals - Tech secrets will be leaked - State vs state for economic reasons

Table 5. World, Inc. Analysis: (Global Economy, Constrained Technology, Sub-national Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
INFO THEORY					
MESSAGE	<ul style="list-style-type: none"> - Global business, economics - Government controls protect society 	<ul style="list-style-type: none"> - Global business - Money brings influence - Help us make money and we'll help you 	<ul style="list-style-type: none"> - Local news, sports, human interests - Most idealists will lose out - A few heroes will encourage others to keep trying 	<ul style="list-style-type: none"> - Dog eat dog world - Economic share for "have nots" - "Have nots" demand more 	<ul style="list-style-type: none"> - Ideological struggles flourish
MEDIUM	<ul style="list-style-type: none"> - Primary: Global = electronic (restricted one-way) - Local = radio/ TV/ newspaper 	<ul style="list-style-type: none"> - Global (WAN), but use LAN to maintain secrets - Limited printed material, mostly electronic 	<ul style="list-style-type: none"> - Stay plugged into human networks, rumors count heavily 	<ul style="list-style-type: none"> - Global connectivity a must - Electronic (radio/TV) - Lots of printed materials locally produced (propaganda) 	<ul style="list-style-type: none"> - Information warfare common—hackers, exploitation - Demand for more and accurate information - Education
INFOSPHERE	<ul style="list-style-type: none"> - WAN governance - Less global than corporations 	<ul style="list-style-type: none"> - Corporate honey-pots for insiders - Global, WAN for corporations, stock market and banks - Open corporate architecture for elite, limited for workers - All others = constrained net architecture 	<ul style="list-style-type: none"> - Identify most with transnational corporations - More local than global - Firewalls and propaganda 	<ul style="list-style-type: none"> - Virtual underworld is key - Less than global for gov'ts and corporations - Corporate spies - Local controls 	<ul style="list-style-type: none"> - Relentless, virtual guerrilla warfare
SOCIETY	<ul style="list-style-type: none"> - Virtual watchdogs 	<ul style="list-style-type: none"> - Corporate extended, global families 	<ul style="list-style-type: none"> - Global citizens 	<ul style="list-style-type: none"> - Those with access see a different world than those without 	<ul style="list-style-type: none"> - Clash of realities

Table 5 continued. World, Inc. Analysis: (Global Economy, Constrained Technology, Sub-national Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
POLITICAL SCIENCE					
RATIONAL ACTOR	<ul style="list-style-type: none"> - Support Global Bank and powerful transnationals 	<ul style="list-style-type: none"> - Get state to spend money on expensive public services, resist burdens of statehood 	<ul style="list-style-type: none"> - Rely on state for humanitarian and security issues, but corporations control opportunities for individual prosperity - Fewer individual rights - Will depend upon gov't and corporations to do what is "right" - More restrictions on operations and individuals - Limited privacy - Loss of values and standards as education falls behind - People push for survival 	<ul style="list-style-type: none"> - Think globally, but resist sharing all - Maintain some advantage 	<ul style="list-style-type: none"> - Lack of sacrifices for the greater good as states - Power loss to non-state actors
STRUCTURAL REALISM	<ul style="list-style-type: none"> - Some states will always be stronger than others due to geographic advantages - US constitution remains the same, but loss of rights and privacy overall - More taxation of corporations - Control of immigration - Coastal and urban migration - Ideology = free market - Business interests are protected - Loss of values standards of conduct - In it for a buck! 	<ul style="list-style-type: none"> - Form matters among non-state competition - Ideology: free market (when it helps, but they want global controls) - Corporations acting globally in many countries - Limited pay for employees - Narrow opportunity for advancement - Dictatorial corporate structures 		<ul style="list-style-type: none"> - Deals and alliances with non-state actors can help alleviate state concerns - Fewer individual rights - Much less democracy - More dictatorships controlled by "big business" 	<ul style="list-style-type: none"> - Invasions possible to own key strategic geography - More conflict due to loss of values and increased brutality - Needs and greeds - Increase in small groups who try to instill religious and moral values

Table 5 continued. World, Inc. Analysis: (Global Economy, Constrained Technology, Sub-national Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
SYSTEMS	<ul style="list-style-type: none"> - Lesser states and corporations form alliances against powerful entities - Limit United Nations type organizations—hinder business - Limit global union organizations 	<ul style="list-style-type: none"> - Seek quick remedies to systemic flaws - Unions vs corporations 	<ul style="list-style-type: none"> - Confusion and lack of cohesion among neighbors - Unions take place of local gov'ts 	<ul style="list-style-type: none"> - More than geography matters as states and non-state entities create power blocs 	<ul style="list-style-type: none"> - Corps considered legitimate targets - Conflict = state vs Global Bank - US vs ROW - US military ensures access to resources and fair trade
GLOBALISM	<ul style="list-style-type: none"> - Use legitimacy as leverage between sub-nationals and Global Bank - Attempt to ally w/other states against Global Bank when rulings are NOT in favor of US 	<ul style="list-style-type: none"> - Global Bank is key - Preserve credit rating 	<ul style="list-style-type: none"> - Scan and think globally, but seek solace among winners 	<ul style="list-style-type: none"> - Failure to participate in global economy will doom those states 	<ul style="list-style-type: none"> - Failing states may lash out - State vs corporations or individuals - Non-state vs state over reg control - Non-state vs individual
NEW SCIENCE					
QUANTUM PHYSICS	S<>Global Bank S<>Non-state S<>People S<>ROW	N/S<>State N/S<>People N/S<>ROW N/S<>Global Bank N/S<>People N/S<>ROW - US becomes more identified w/corporations, non-state actors, and the Global Bank.	<ul style="list-style-type: none"> - People can shift loyalties and betray corporate trust if they are ignored 	<ul style="list-style-type: none"> - Traditional relationships matter less than new ones. 	<ul style="list-style-type: none"> - Widespread impetus for conflict, few understand the reasons why
<i>Weak Bonds</i>	S<>People S<>ROW				
Strong Bonds	S<>ROW				

Table 5 continued. World, Inc. Analysis: (Global Economy, Constrained Technology, Sub-national Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
CHAOS THEORY	<ul style="list-style-type: none"> - State power enabled by non-state actors - States behavior follows ever-changing alliances with non-state actors 	<ul style="list-style-type: none"> - The market is global so no state can be ignored or discounted - Relationships between non-state actors and the state are key - Emergence of coalition countries against U.S. 	<ul style="list-style-type: none"> - Human networks not restricted to physical, collocated societies - U.S. becomes "military force" for corporations world-wide 	<ul style="list-style-type: none"> - World competition becomes convoluted beyond comprehension 	<ul style="list-style-type: none"> - Worldwide fields of competition become worlds apart
SELF-ORGANIZING SYSTEMS	<ul style="list-style-type: none"> - Disequilibrium probable as states change non-state alliances - Individuals interacting w/non-state actors 	<ul style="list-style-type: none"> - Alliances are weak - Individuals interacting w/state 	<ul style="list-style-type: none"> - Power flows to those who stay in the know, can see possibilities 	<ul style="list-style-type: none"> - Worldwide consultants help less adept players - Disequilibrium between N/S actors & ROW and ROW & US 	<ul style="list-style-type: none"> - The nation-state transforms to state-corporate entities
<p>Conclusions:</p> <ol style="list-style-type: none"> 1. Global economy leads to erosion of state representation 2. People seek clarity and advice from global consultants; People will fight corporations for control 3. States become indistinguishable from others as geography matters less than relationships among players 4. Legitimacy among players becomes less meaningful—the Global Bank will have its hands full 5. World, Inc. is a very political and unstable world 6. Loss of the government's ideology 7. Increased loss of individual rights and privacy 8. Rise of unions 9. Rise of the individual as the corporate terrorist 10. US military will become corporate "pawns" 					

Table 5 continued. World, Inc. Analysis: (Global Economy, Constrained Technology, Sub-national Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
SOCIAL SCIENCE					
ORG THEORY:					
MODEL I	<ul style="list-style-type: none"> - Act to maintain influence, deal with other states, corporations, and individuals - Work to supplant corporate social programs - Contain spread of technology - Cyber-police for criminal activity. 	<ul style="list-style-type: none"> - Can operate from anywhere, but best to stabilize home base within supportive state - Increase social programs to keep workers happy - Push technology to keep informed of world events - Negotiate with all to secure first access to markets, resources, & newest technology 	<ul style="list-style-type: none"> - Flock to corporations with best benefits packages - More hedonistic as a people - Form citizen groups & alliances to get more benefits & bigger "piece of the pie" 	<ul style="list-style-type: none"> - Power game played similarly worldwide in all places that matter - Attempt to control markets & technologies for good of people - Regulate & tax information & technology to control market - Alliances to defeat/usurp US and corporate power - Cyber-police & spies - Negotiate market access 	<ul style="list-style-type: none"> - Corporate agendas clash with public good, states take the heat - Shifting alliances to gain more - State vs. state - Citizens demand more & wish to limit taxes - Spying & market share.
MODEL II	<ul style="list-style-type: none"> - Reorganize to deal with each separately: other states, corporations, individuals - Resist change. Use "threat of force" to enter states for resources - Control technology - Limits on immigration to prevent spying 	<ul style="list-style-type: none"> - Conglomerates grow and take on state-like responsibilities, inefficiencies creep in - Resist change - Bargain & use "economic force" (bribery) to gain entry into other global markets - Establish forces to protect proprietary information - Protect proprietary info, limit alliances 	<ul style="list-style-type: none"> - Seek organizations that offer stable benefits and security - Resist change - Push for work place strategies to increase productivity & income - Push for greater health care & benefits—more leisure activities. 	<ul style="list-style-type: none"> - Eccentric states and societies with noticeable change obstacles will suffer - Resist change. - Join with others (corps, N/S actors, states) to limit US market share - Establish paramilitary force to deal with "corporate spies" 	<ul style="list-style-type: none"> - Tension, riots, and violence aimed at state and corporate inefficiencies - Conflict at highest levels of Maslow's hierarchy to reap benefits of good life - Immigration to preserve jobs. - "Brain drain" to ROW

Table 6. Bladerunner Analysis: (Global Economy, Distributed Technology, Sub-national Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
MODEL III	<ul style="list-style-type: none"> - Adjust priorities according to worldwide political power shifts - Attempt diplomacy to gain US influence, resort to: economic blockade, saber rattling, cut off access - Bargain with various coalitions to ensure open markets - Resort to "most favored nation" for these distinctions 	<ul style="list-style-type: none"> - The devil is in the details, success for one can doom another - Attempt coalition alliances to gain "market share" - Use delaying & bureaucratic methods to attempt to limit technology transfer 	<ul style="list-style-type: none"> - Distinguish most capable players from others, follow them like groupies - Alliances - Political action committees - More nature & environmental protection groups 	<ul style="list-style-type: none"> - Unified states and organizations win over fractionated power—rise of autocracy - Diplomacy: numerous delaying tactics - Alliance shifts to maintain markets & identity 	<ul style="list-style-type: none"> - Assassins used to tip the scales of power - Slow bureaucratic process not able to influence spread of technology & change - Rapid change itself
INFO THEORY					
MESSAGE	<ul style="list-style-type: none"> - The state recognizes every state, organization, and individual as potential players - Economic, political, defense 	<ul style="list-style-type: none"> - Seek to attract the best people by highlighting worldwide capabilities and influence - Economic, political, defense 	<ul style="list-style-type: none"> - Develop and market abilities to spin and counter-spin - Economic, political, advertising 	<ul style="list-style-type: none"> - Work to be recognized as progressive places of opportunity - Environment, economic, medical, human interest 	<ul style="list-style-type: none"> - Realities clash with expectations - Economic and politically-based conflict
MEDIUM	<ul style="list-style-type: none"> - Global IT network - Beyond wireless 	<ul style="list-style-type: none"> - Accept no knowledge gaps - Beyond wireless 	<ul style="list-style-type: none"> - Worldwide playing fields - Beyond wireless 	<ul style="list-style-type: none"> - Market modernity and appeal - Beyond wireless 	<ul style="list-style-type: none"> - Global problems manifested locally - Change - Newer technologies
INFOSPHERE	<ul style="list-style-type: none"> - Ubiquitous, totally invasive - Global village 	<ul style="list-style-type: none"> - Stay ahead of the state to maintain edge 	<ul style="list-style-type: none"> - Cannot afford to drop out of the knowledge loop - Total global wireless net - Global village 	<ul style="list-style-type: none"> - Shaped by most powerful while offering easy access to all 	<ul style="list-style-type: none"> - Infosphere attacks are most serious - Global information overload

Table 6 continued. Bladerunner Analysis: (Global Economy, Distributed Technology, Sub-national Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
SOCIETY	- Just-in-time posture	- Virtual societies necessary	- Fast-paced, relentless competition	- Accommodate the majority	- Fast wins over deliberate
POLITICAL SCIENCE					
RATIONAL ACTOR	- Above all, states still matter most. - Work with other governments to restore state power base	- Use states as surrogates for subnational agendas	- States will pay attention to most influential people and squeakiest wheels	- Show responsibility and restraint while highlighting capabilities	- States vs. states as states are manipulated by non-state agendas
STRUCTURAL REALISM	- Focus on those states that sponsor and share influence with key subnationals - More democratic government - No isolationism (Global)	- A new landscape emerges based upon geography, influence, and state vs. non-state policies - Free market based - Fewer geographic restrictions (overcome by technology)	- Stick with winning state and non-state combinations - Democratic - Free market consumers - Protect environment. (Global)	- Losers look for ways to add value to more powerful conglomerates	- The way in for some may depend upon the fall of others - Assured access to markets/ market share - Rapid change
SYSTEMS	- Recognize and shape system containing all actors and groups, but states constitute basis - Preserve states by negotiation - Use of armed forces are last resort	- Seek to maintain system stability, repair and replace key parts as needed - N/S take place of US as international actor - Spying: but armed action rare	- The best system combinations can continue to overcome adversity - No stomach for casualties in military conflict	- There is room in the system for everyone in some capacity, the key is to figure out where, when, and how - Equal trade partners through alliances - Accepting of corporations vs. nations to negotiate markets	- Target like entities and fight to take their place - Global markets & pulling of corporations to take the place of other legitimate state governments - Economic rivals. - Shifting alliances to maintain overall balance or power

Table 6 continued. Bladerunner Analysis: (Global Economy, Distributed Technology, Subnational Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
GLOBALISM	<ul style="list-style-type: none"> - Resist supranational pressures - Try to maintain state hold, constant pressure by N/S & alliances to maintain open markets 	<ul style="list-style-type: none"> - Leveling and equality policies threaten power base - Expand worldwide 	<ul style="list-style-type: none"> - Desire global protection and stability nets - Demand market and environmental protection 	<ul style="list-style-type: none"> - Supranational oversight and policies benefit least competitive actors - More decline w/ corporations vs. nation states for markets 	<ul style="list-style-type: none"> - Ideology-based socialism encourages losers to unite against winners - Changing nature of relationships between US & other nations as corporations take over responsibilities & influences
NEW SCIENCE					
QUANTUM PHYSICS	<ul style="list-style-type: none"> S<>N/S S<>P S<>R/W S<>S 	<ul style="list-style-type: none"> N/S<>S N/S-<>N/S N/S<>People N/S-<>ROW 	<ul style="list-style-type: none"> - Join key supranationals —at least connect to powerful state surrogates or influential individuals 	<ul style="list-style-type: none"> - Bonds between actors and entities matter more than the players 	<ul style="list-style-type: none"> - Losers exploit weakest bonds
<i>Weak Bonds</i>	<ul style="list-style-type: none"> S<>State S<>People 	<ul style="list-style-type: none"> N/S<>-State N/S<>ROW 	<ul style="list-style-type: none"> P<>State 	<ul style="list-style-type: none"> R/W<>State R/W<>Non-state 	
Strong Bonds	<ul style="list-style-type: none"> S<>-Non-State 	<ul style="list-style-type: none"> N/S<>N/S N/S<>People 	<ul style="list-style-type: none"> P<>People P<>N/S 	<ul style="list-style-type: none"> R/W<>People 	
CHAOS THEORY	<ul style="list-style-type: none"> - No actor is indispensable, focus on function over form - Decreasing state influence 	<ul style="list-style-type: none"> - Relationships with strong states are important, but not above all - Increasing strength of N/S actors & N/S<>P bonds 	<ul style="list-style-type: none"> - Most talented will gravitate to larger entities, no shortage of opportunities - Global village strengthens will of people. - N/S picks up state slack 	<ul style="list-style-type: none"> - Remain poised to take advantage of worldwide opportunities - Decreasing national importance - Increasing importance of global markets - More democratic influence 	<ul style="list-style-type: none"> - Broken agreements as competitors perform like functions better - Globalism - Democracy vs. other forms of government - Open markets

Table 6 continued. Bladerunner Analysis: (Global Economy, Distributed Technology, Subnational Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
SELF-ORGANIZING SYSTEMS	<ul style="list-style-type: none"> - The power of individuals is fleeting - Loser 	<ul style="list-style-type: none"> - Constant change is necessary and purposeful - Winner 	<ul style="list-style-type: none"> - Flock to successful entities, but success demands instability and chaotic behavior—a middle ground arises - Winner 	<ul style="list-style-type: none"> - Stagnation invites death or transformation - Decreasing national importance - Increasing importance of global markets - Loser 	<ul style="list-style-type: none"> - Losers attempt to turn losses into positive events, but may be last-ditch efforts
<p>Conclusions:</p> <ol style="list-style-type: none"> 1. Action wins over inaction, better to act than deliberate 2. Competition relentless and ever-changing in nature 3. Function wins over form most of the time (if individuals can outperform other actors, then so be it) 4. Preoccupation with state behavior, versus others, will result in rude awakening 5. No actor (state, non-state, or individual) is indispensable, keep moving or die 6. State control erodes. 7. Democracy increases, but too many votes count (harder to manage) 8. Corporations provide more effective rules of services for the people than state 9. Most alliances are weaker 10. Globalism materializes as technology brings world closer 11. Increasing information flow 12. Expect constant conflict—States try to retain power and everyone resists change 					

Table 6 continued. Bladerunner Analysis: (Global Economy, Distributed Technology, Subnational Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
SOCIAL SCIENCE					
ORG THEORY:					
MODEL I	<ul style="list-style-type: none"> - Makes sense to abide by supranational rules, desire economic inclusion - Attempt to keep info flow to people - Sustain goods and services - Recruit from other regional trade blocs for best people - Negotiate w/other regional trade centers for products - Make laws to protect technology lead - Establish and maintain economic trade barriers - Continue to tax as much as possible to pay for advanced technology (tech will cost more due to constraints) - Use technological edge to "persuade" others in regional hegemonic economies to agree to trade 	<ul style="list-style-type: none"> - Best to provide services to supranational institutions - Clamor for "more info" - Lobby for fewer regulations and lower taxes/trade restrictions - Negotiate with the state to reduce trade barriers and for tax breaks - Attempt to litigate to avoid payment of taxes - Form alliances to increase trade within and between trade blocs 	<ul style="list-style-type: none"> - Strive to be included and stay beneath the supranational fray - Lobby government to reduce trade barriers - Lobby government for lower price - Lobby against use of Supranational military within other "states" - Lobby against "policing" powers of Supranational organization - Attempt to gain access to information and other technologies - Allow the educated, "informed," "elite" to rule and make decisions for the masses - Show little interest in national, global political, or economic events as long as individual services are unaffected 	<ul style="list-style-type: none"> - Best to be represented by a supranational with clout - Attempt to protect economies and technologies through barriers, sanctions, regulations, taxes - Increase "spies" to gather information about new technologies - Negotiate trade between blocs - Tax imports - Lobby against "abuses" and "invasions" by supranational organization's military and "policing" actions 	<ul style="list-style-type: none"> - Between individuals and controlling entities - Economic spying - Protectionist policies - Lack of information - Taxes/trade barriers - "Policing actions" by supranational organization - Control of natural resources

Table 7. Present Future Analysis: (Hegemonic Economy, Constrained Technology, Supranational Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
MODEL II	<ul style="list-style-type: none"> - Orient activities on supranational requirements - Resist unfavorable decisions by supranational government - Establish traditional trade barriers to control trade/technology flow - Use bureaucratic delays to control technology expansion - Use negotiations between coalitions as a "delaying tactic" - Limit rights of individuals - Limit use of democratic methods where possible—justify as need for protection from other coalitions 	<ul style="list-style-type: none"> - Repertoire built upon supranational requirements - Use negotiations to delay unfavorable positions - Hide behind US government and the supranational organization as required to receive favors 	<ul style="list-style-type: none"> - Perform functions well, don't get left out in the cold - Show less interest in democracy and free market economies as long as needs are met - Be proactive against other coalitions who restrict trade and services that affect them 	<ul style="list-style-type: none"> - Supranational eyewash flourishes - Use diplomatic delays when needed to gain favorable treaties and avoid "policing" actions - Form groups and alliances to sway world opinion against competitors - Establish trade barriers - Use negotiations as a "delaying tactic" - Limit rights of individuals - Limit use of democratic methods where possible—justify as need for protection from other coalitions 	<ul style="list-style-type: none"> - Local hardships due to supranational focus - Economic conflicts - Economic and political espionage - Policing actions by supranational organization - Control of resources

Table 7 continued. Present Future Analysis: (Hegemonic Economy, Constrained Technology, Supranational Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
MODEL III	<ul style="list-style-type: none"> - Insert state sympathizers into supranational leadership - Attempt to restore state control of the military through negotiations, non-payment of taxes/support, and non-support of military use by the supranational group - More negotiations between non-state actors and the government 	<ul style="list-style-type: none"> - Games easier to manage, narrowed supranational playing field - Attempt to use the rift between US and supranational organization as a wedge for increasing economic status throughout the world - Pit hegemonic economies against one another to enhance economic opportunities 	<ul style="list-style-type: none"> - "Big Brother" is watching 	<ul style="list-style-type: none"> - Buy access to supranational game - Form alliances to counter supranational power - Form shifting alliances to protect against supranational policing 	<ul style="list-style-type: none"> - Fight for rights to privacy and "truth" - Growing rift between US and supranational organization - Economic control between US and non-state actors - Interference by supranational and control of military
INFO THEORY					
MESSAGE	<ul style="list-style-type: none"> - The state understands and supports supranational requirements - Global/local economic - Global political - Global protection (military force) - "Spin doctoring" for control 	<ul style="list-style-type: none"> - Non-state can translate supranational requirements into proper local actions - Global/local economic - Global/local political - Advertising 	<ul style="list-style-type: none"> - Demand attention and accountable representation - Local economic - Local political - Local human interest - Local sports 	<ul style="list-style-type: none"> - While fighting for supranational inclusion, use non-state and individual actors to highlight unfair play - Global/local economic - Global/local political - Regional sports - Regional human interest - Local sports, politics, human interests 	<ul style="list-style-type: none"> - Resist supranational assimilation and worldwide concerns at the expense of locals - Global vs. local economics - Economic & political changes - Protectionist measures - Battle for truth

Table 7 continued. Present Future Analysis: (Hegemonic Economy, Constrained Technology, Supranational Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
MEDIUM	<ul style="list-style-type: none"> - Worldwide (WAN), but prioritizes links among certain levels and supranational components 	<ul style="list-style-type: none"> - Supports negotiations with states, supranational architecture, and knowledge workers 	<ul style="list-style-type: none"> - Push for direct access to supranational actors 	<ul style="list-style-type: none"> - Seek worldwide economic trade & technological access - Printed and electronic 	<ul style="list-style-type: none"> - Rally against technology and economic hegemony - Over information access
INFOSPHERE	<ul style="list-style-type: none"> - Information manipulation is assumed - Global Internet for advanced governments and political "elites" - LANs for all others (perhaps regional LAN vs. global Internet) 	<ul style="list-style-type: none"> - Certain sources and connectivity valued much more than the rest - Attempts to gain global Internet - Mostly local access for employees and lower managers 	<ul style="list-style-type: none"> - Few trusted sources, human networks regain popularity - Mostly local access 	<ul style="list-style-type: none"> - Work to gain access to the virtual supranational place in all manner of direct and indirect ways 	<ul style="list-style-type: none"> - Rise of cyber-terror and cyber-crimes
SOCIETY	<ul style="list-style-type: none"> - Information controllers constitute elite 	<ul style="list-style-type: none"> - Exploitation along the margins between states and supra-state associations 	<ul style="list-style-type: none"> - Those with widest access to all information levels are most powerful 	<ul style="list-style-type: none"> - Focused mostly on the supranational entity 	<ul style="list-style-type: none"> - Bandwagon tactics
POLITICAL SCIENCE					
RATIONAL ACTOR	<ul style="list-style-type: none"> - All states may comply with supranational agendas, but self-interest will prevail - Resist changes - Reclaim state military control - Limit technology spread 	<ul style="list-style-type: none"> - Prosperity and influence is a function of state and supranational behavior - Use state & supranational to enter other economic blocs, obtain cheap resources, and enter new markets - Resist additional government interference 	<ul style="list-style-type: none"> - Exercise agendas through states - Look out for self interests - Relatively happy - Focus on local issues - Supranational policing are wasteful unless affects everyone personally 	<ul style="list-style-type: none"> - Comply or at least appear to comply with supranational demands, or else... - Attempt to limit supranational police actions - Fear military and technological advantages of US & supranational organization 	<ul style="list-style-type: none"> - States resist supranational management - Attempts to gain economic, political, technological parity - Control and policing actions by supranational organization

Table 7 continued. Present Future Analysis: (Hegemonic Economy, Constrained Technology, Supranational Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
STRUCTURAL REALISM	<ul style="list-style-type: none"> - Lesser states may benefit from supranational politics, but strong states will remain relatively stronger - More "republic" than democratic - Loss of private rights of citizens (forfeit to the "political elite") - Loss of privacy - Isolationism within the trade blocs and regions 	<ul style="list-style-type: none"> - Watch for geographic and ideological weak areas - Limited free market economies to protect position - Stiff competition between corporations for technical advantage and market share 	<ul style="list-style-type: none"> - Be careful with overt ideological rhetoric - Some limits OK, but goods and services must keep flowing - Limited involvement in government 	<ul style="list-style-type: none"> - Some entities will be regarded as losers no matter what they do - Less democratic - More protective, dictatorial - Rise of cultural differences—identity to justify competition for resources 	<ul style="list-style-type: none"> - Weak states take chances and try to take over others with more to offer to the supranational - Power struggles for control - Cultural diversity
SYSTEMS	<ul style="list-style-type: none"> - Cut deals to gain economic and technological parity - Preserve state by negotiation - Form coalitions to hold power of supranational and regional markets 	<ul style="list-style-type: none"> - Best to be allied with insiders and other trusted entities - Push state and Supranational to intercede globally to protect interests - N/S actors will search for advantages during conflict 	<ul style="list-style-type: none"> - Stick with strong states through thick and thin - Relatively content - Dislike, distrust, fear supranational entity - Appeal to the state for protection 	<ul style="list-style-type: none"> - Seek alliances with supranational winners - Fear supranational organization and large power alliances - Associate all non-state actions with the U.S. and supranational power - Form alliances to counter U.S. and U.S. sponsored non-state actions 	<ul style="list-style-type: none"> - Clashes between supranational armies - Retaliation against U.S. for actions by N/S - Global interference by U.S. and supranational organization

Table 7 continued. Present Future Analysis: (Hegemonic Economy, Constrained Technology, Supranational Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
GLOBALISM	<ul style="list-style-type: none"> - Global competition makes everything harder and even less certain - Attempts to gain global control through supranational government - Object and limit agreement with main body if supranational moves without U.S. concurrence 	<ul style="list-style-type: none"> - Globalism favors non-state entities, but tech restrictions stifle globalism - Attempt entry into global markets through supranational and U.S. - Gain power by attempting to manipulating the state and supranational organizations 	<ul style="list-style-type: none"> - Globalism empowers people, but uncertainty grows - Focus is mostly local, not global (except for markets necessary for quality of life) 	<ul style="list-style-type: none"> - Powerful supranationals resist, weak ones welcome globalism - Counter global thrust of U.S. and supranational - Counter advancing high technology of other regions/ coalitions - Attempt to control people within regions 	<ul style="list-style-type: none"> - Competition for resources and information control
NEW SCIENCE					
QUANTUM PHYSICS	<ul style="list-style-type: none"> - State and supranational links matter most 	<ul style="list-style-type: none"> - Transnational commerce encourages globalism 	<ul style="list-style-type: none"> - Hegemonic controls on economy equate to greater people controls 	<ul style="list-style-type: none"> - Complexity odds favor the underdogs 	<ul style="list-style-type: none"> - Non-state and individuals compete against state and suprastate manipulation
CHAOS THEORY	<ul style="list-style-type: none"> - Hegemonic controls only prevail at the expense of economic prosperity - State loses to the supranational organization and non-state actors despite strength of people on local level 	<ul style="list-style-type: none"> - Messy world stage equates to more non-state opportunities - Entry to global markets through alignment with supranational organization—however, non-state actors remain wary of supranational org due to taxation & other "interference" in business 	<ul style="list-style-type: none"> - Freedom accompanied by uncertainty and fear - People consistently relegate their powers to elites—focus becomes increasingly local vs. global 	<ul style="list-style-type: none"> - More assaults on hegemonic controls, exclusionary practices will not last 	<ul style="list-style-type: none"> - Fight for economic and technological inclusion

Table 7 continued. Present Future Analysis: (Hegemonic Economy, Constrained Technology, Supranational Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
SELF-ORGANIZING SYSTEMS	- At key juncture, states need to lead fight against supranational hegemony in favor of individuals and non-state actors - Losers	- The bond between states and supranationals is key, exploit signs of weakness - Winners	- Support non-state assault on state vs. supranational relationship - Losers	- Hegemony will not last, get ready to move	- Chaotic, worldwide turmoil will follow as hegemonic controls fall

Conclusions:

1. It is only a question of time before hegemonic practices are abandoned
2. The fight for individual freedom supports globalism
3. Worldwide trade support globalism
4. The "history repeats itself" dynamic makes sense in light of the competing variables
5. The state model makes sense and seems more stable, but it will not remain preeminent
6. States still global, but people will be more locally focused. People shift to global focus when possible or fed information
7. Loss of national ideology as people isolate themselves from government and the world
8. Potentials for cultural- and moral-based conflict as these factors are used to justify shares of global markets
9. Fear of powerful military and supranational police action
10. People will form local, virtual connections of interest within the societies rather than unite as one "geographic" people
11. Rise of "elite" in politics and markets—people will relegate more responsibilities to the elite
12. Lack of government trust due to perceived propaganda and "truth" revelations

Table 7 continued. Present Future Analysis: (Hegemonic Economy, Constrained Technology, Supranational Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
SOCIAL SCIENCE					
ORG THEORY:					
MODEL I	- US preserves status quo while rationalizing away contrary pressures/trends	- Freedom of maneuver within a state-centric system is the economical way to go	- Some think globally, but local concerns outweigh all others	- The mantle of world leadership is comparatively good hands with the US	- There is much that can be done without compelling US involvement
MODEL II	- Geographic and functional strategic subsets keep leaders aware of key worldwide activities	- US companies can take advantage of overseas markets and fewer restrictions	- Political correctness ostensibly means opportunities for everyone	- Global competition on level playing fields deals ruthlessly with inefficient organizations	- Corporations and states with higher requirements want fixed prices and guarantees while competitors welcome free markets
MODEL III	- Schizophrenic policies result from global versus local compromises	- Non-state entities outperform lethargic states, making bureaucracies look foolish and outdated	- Expectations higher, demand non-state efficiencies from state institutions	- Rise of great communicators and media-savvy leaders	- Individuals blamed for institutional failures, frequent sacrifices on press alters
INFO THEORY					
MESSAGE	- Change is good and opportunities have never been greater	- Don't sit still, move or get run over, function more important than form	- Everything is changing, although exciting, uncomfortable with pace and lack of control	- American empire and culture exported worldwide, "glocalize" is about the only option	- Backlash against American capitalism and far-reaching influence
MEDIUM	- More and more Internet, less and less personal customer service	- Empower and accommodate individuals, customized software	- Global options, and economic opportunity, but villager mentality	- Get connected to the Internet, but do not lose control of society	- Proliferation of wireless and satellite connectivity undercuts government control

Table 8. Current Analysis: (Current Economy, Current State of Technology, and Current Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
INFOSPHERE	- Connectivity to Internet growing, but not available to all	- Encouraging connectivity by giving away access for free	- Caught in the middle between traditional priorities and appeal of the "Networld"	- Want Internet for economic reasons, but uncomfortable with unfiltered worldwide info flow	- Those with access to net and media expect more from their governments, many leave (physically and virtually)
SOCIETY	- Aware of cyber-societies, but not sure why state should care	- Unbounded by borders and local restrictions	- Want both—to be free and secure	- Cultural ties important to societies, but sometimes impediments to worldwide commerce	- Local culture clashes with global bottom lines
POLITICAL SCIENCE					
RATIONAL ACTOR	- State still relatively powerful and central to political processes	- Non-state actors exist as the pleasure of states and pirates	- Accountable governments make life simpler	- Weak states see the power of information and global conscience as the mother lode	- States compelled to acknowledge non-state actors within the political process
STRUCTURAL REALISM	- Certain states (especially the U.S.) are more fortunate than others due to historical alliances and geographic buffers	- Transnational posture allows non-state actors to coerce states to support their needs in exchange for economic advantages	- Believe what you want, but live somewhere safe and convenient with access to the rest of the world	- Attract people by offering high standards of living, secure societies, and convenience	- Immigrant populations displace indigenous locals and raise cost of living
SYSTEMS	- States operate within an ever-changing worldwide system	- Balance against competitors and maintain agile posture	- Businesses and people come and go overnight, employees less apt to stay very long	- Money can buy brainpower, technology, and security	- Combatants for hire, no need to invest in just-in-case weaponry, just-in-time mercenaries can do the trick

Table 8 continued. Current Analysis: (Current Economy, Current State of Technology, and Current Politics).

THEORY	STATE	NON-STATE	PEOPLE	REST OF THE WORLD	CONFLICT
GLOBALISM	- Being compelled by non-state actors and individuals, means relative loss of state power	- Global markets mean more opportunities	- Global view desired, but local implications unforeseen	- Globalism is coming, so get ready	- How best to balance global market and issues with local realities and traditions
NEW SCIENCE					
QUANTUM PHYSICS	- Ripples all over the world can have profound effects throughout the rest of the world	- Ride the waves of change, let the state worry about the societal implications	- Global dynamics make people feel inadequate and unprepared	- Information technology is exacerbating the globalizing phenomena	- Purposely separate disciplines are now being combined, thus presenting ethical and moral dilemmas
CHAOS THEORY	- Overwhelmed states contract out governance	- What is good for business is often bad for society at large	- Worldwide special interest groups emerge and take the place of local commiseration	- The nation may no longer be represented by the nation-state	- States struggle to maintain their tax base and loyal citizenry
SELF-ORGANIZING SYSTEMS	- Governments inadequate, may lead to more virtual, 24/7 governance	- Provide sense of community for workers as state social structures erode	- Turn to non-state entities for sense of belonging	- Some wait for dust to settle, contract out global economic oversight and assistance	- Transnat'l corporations become state's knowledge workers, but follow worldwide opportunities
Conclusions: 1. Globalism seems inevitable, however need local corrections and restrictions for greater societal good 2. US should shape global environment soon to protect its interests, status quo is not enough 3. Societal changes are already happening, need ways to keep the faith 4. American ideology may not be up to the challenge					

Table 8 continued. Current Analysis: (Current Economy, Current State of Technology, and Current Politics).

BIBLIOGRAPHY

- Adams, James. *The Next World War: Computers Are the Weapons & the Front Line is Everywhere*. New York: Simon & Schuster, 1998.
- Alberts, David S., John J. Garstka, and Frederick P. Stein. *Network Centric Warfare: Developing and Leveraging Information Superiority*, 2nd Edition (Revised). Washington, D.C.: C4ISR Cooperative Research Program, 1999.
- Alexander, Bevin. *The Future of Warfare*. New York: W.W. Norton & Company, Inc., 1995.
- Allison, Graham T. *Essence of Decision: Explaining the Cuban Missile Crisis*. Massachusetts: Harper Collins Publishers, 1971.
- Arquilla, John and David Ronfeldt. *In Athena's Camp: Preparing for Conflict in the Information Age*. Santa Monica, California: National Defense Research Institute, 1997.
- Bolman, Lee G. and Terrence E. Deal. *Reframing Organizations: Artistry, Choice, and Leadership*. San Francisco, California: Jossey-Bass Publishers, 1991.
- Briggs, John and F. David Peat. *Turbulent Mirror: An Illustrated Guide to Chaos Theory and the Science of Wholeness*. New York: Harper & Row Publishers, 1989.
- Brown, John Seely and Paul Duguid. *The Social Life of Information*. Boston, Massachusetts: Harvard Business School Press, 2000.
- Brzezinski, Zbigniew. "America in the World Today." Paper presented as part of the symposium Complexity, Global Politics and National Security. Washington, D.C.: Institute for National Security Studies, National Defense University, November 13, 1996, available from <http://www.ndu.edu/ndu/inss/books/complexity/ch02.html>; accessed 10 August 2000.
- Cartwright, T.J. "Planning and Chaos Theory." *APA Journal* (Winter, 1991): 44.
- Coates, Joseph F., John B. Mahaffie, and Andy Hines. *2025: Scenarios of US and Global Society Reshaped by Science and Technology*. Greensboro, North Carolina: Oakhill Press, 1997.

- Courtney, Hugh, Jane Kirkland and Patrick Viguerie. "Strategy Under Uncertainty." *Harvard Business Review* (Nov/Dec 1997).
- Davenport, Thomas H. and Laurence Prusak. *Working Knowledge: How Organizations Manage What They Know*. Boston, Massachusetts: Harvard Business School Press, 1998.
- Davis, Jacquelyn K. and Michael J. Sweeney. *Strategic Paradigms 2025: U.S. Security Planning for a New Era*. Herndon, Virginia: Institute for Foreign Policy Analysis, Brassey's, 1999.
- Diamond, Jared. *Guns, Germs, and Steel: The Fates of Human Societies*. New York: W.W. Norton & Company, 1999.
- Features, "The Last Computer," *New Scientist*, 2 September 2000, 26.
- Friedman, Thomas L. *The Lexus and the Olive Tree*. New York: Anchor Books, 2000.
- Gell-Mann, Murray. "Simple and the Complex." Paper presented as part of the symposium Complexity, Global Politics and National Security. Washington, D.C.: Institute for National Security Studies, National Defense University, November 13, 1996, available from <http://www.ndu.edu/ndu/inss/books/complexity/ch01.html>; accessed 10 August 2000.
- Holman, Peggy and Tom Devane. *The Change Handbook: Group Methods for Shaping the Future*. San Francisco, California: Berrett-Koehler Publishers, Inc., 1999.
- Kaplan, Morton A. *System and Process in International Politics*. New York: Wiley, 1964.
- Keegan, John. *A History of Warfare*. New York, Vintage Books, 1993.
- Kennedy, Paul. *Preparing for the Twenty-First Century*. New York: Vintage Books, 1993.
- Kennedy, Paul. *The Rise and Fall of the Great Powers*. New York: Vintage Books, 1987.
- King, Gary, Robert O. Keohane, and Sidney Verba. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton, New Jersey: Princeton University Press, 1994.

- Libicki, Martin C. *Illuminating Tomorrow's War*, MacNair Paper 61, Institute for National Security Studies, National Defense University. Washington, D.C.: National Defense University Press, October 1999.
- Liotta, P.H. "To Die For: National Interests and Strategic Uncertainties." *Parameters*, Vol. XXX, No.2 (Summer 2000): 46-57.
- Mazarr, Michael J. "Chaos Theory and U.S. Military Strategy: A 'Leapfrog' Strategy for U.S. Defense Policy." Paper presented as part of the symposium Complexity, Global Politics, and National Security. Washington, D.C.: Institute for National Security Studies, November 13, 1996, available from <http://www.ndu.edu/ndu/inss/books/complexity/ch11.html>; accessed 10 August 2000.
- Metz, Steven. "Armed Conflict in the 21st Century: The Information Revolution and Postmodern Warfare." Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, February 11, 2000.
- Orwell, George. 1984. New York: Harcourt Brace Javanovich, Inc., 1949.
- Petersen, John L. *Out of the Blue: How to Anticipate Big Future Surprises*. New York: Madison Books, 1999.
- Pfaff, Charles A, Major. US Army. "83 Chaos, Complexity and the Battlefield." *Military Review*. (JulAug00), available from <http://www.cgsc.army.mil/milrev/English/JulAug00/pfaff.htm>; accessed 10 August 2000.
- Prigogine, Ilya. *The End of Certainty: Time, Chaos, and the New Laws of Nature*. New York: The Free Press, 1998.
- Prigogine, Ilya and Isabelle Stengers. *Order Out of Chaos*. New York: Bantam, 1984.
- Ragin, Charles C. *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*. Berkeley, California: University of California Press, 1987.
- Rosenau, James N. "Many Damn Things Simultaneously: Complexity Theory and World Affairs." Paper presented as part of the symposium Complexity, Global Politics, and National Security. Washington, D.C.: Institute for National Security Studies, November 13, 1996, available from <http://www.ndu.edu/ndu/inss/books/complexity/ch04.html>; accessed 10 August 2000.

- Sanders, T. Irene. *Strategic Thinking and the New Science: Planning in the Midst of Chaos, Complexity, and Change*. New York: The Free Press, 1998.
- Schwartz, Peter, Peter Leyden, and Joel Hyatt. *The Long Boom: A Vision for the Coming Age of Prosperity*. Reading, Massachusetts: Perseus Books, 1999.
- Schwartz, Peter. *The Art of the Long View: Planning for the Future in an Uncertain World*. New York: Bantam Doubleday Dell Publishing Group, Inc., 1991.
- Smith, Perry M., Jerrold P. Allen, John H. Stewart II, and F. Douglas Whitehouse. *Creating Strategic Vision: Long-range Planning for National Security*. Introduction by Newt Gingrich. Washington, D.C.: National Defense University Press, 1987.
- Snider, Don M. and Miranda A. Carlton-Carew, ed. *U.S. Civil-Military Relations: In Crisis or Transition?* Foreword by Eliot A. Cohen. Significant Issues Series, Volume XVII, Number 5. Washington, D.C.: The Center for Strategic & International Studies, 1995.
- Snow, Donald M. and Eugene Brown. "Outside Influences II: The Public and the Media." Air War College Regional Studies Book 2, 10th Ed, Lesson 21. Maxwell AFB, Alabama: Air University, November 1999.
- U.S. Commission on National Security/21st Century. *Seeking A National Strategy: A Concert For Preserving Security And Promoting Freedom*. Washington, D.C.: GPO, April 15, 2000.
- Van Creveld, Martin. *The Transformation of War*. New York: The Free Press, 1991.
- Vlahos, Michael. "The Network and the Navy." Forthcoming.
- Vlahos, Michael and Dale Pace. *The Navy and the Infosphere*. Laurel, Maryland: Johns Hopkins Applied Physics Laboratory, JWR-99-002, March 1999.
- Wacker, Watts and James Taylor. *The Visionary's Handbook: Nine Paradoxes That Will Shape the Future of Your Business*. New York: HarperCollins Publishers, 2000.
- Waltz, Kenneth N. *Theory of International Politics*. New York: McGraw-Hill, Inc., 1979.
- Wheatley, Margaret J. *Leadership and the New Science: Discovering Order in a Chaotic World*, 2^d ed. San Francisco, California: Berrett-Koehler Publishers, 1999.

Wilson, James Q. *Bureaucracy: What Government Agencies Do and Why They Do It*. New York: Basic Books, Inc., Publishers, 1989.

Wythe, Mirl W. "The Future of Reality." *The Futurist: Forecasts, Trends, and Ideas about the Future*, Volume 32, No. 6 (August-September 1998): 72.

World Needs High-tech Farming To Feed Itself, 18 Aug 00, Reuters Limited.

ABOUT THE AUTHORS

The primary researcher, Lt Col Scott W. Moore, is currently serving in the Future Concepts Branch at Headquarters, United States Special Operations Command (HQUSSOCOM). A 1998 graduate of the Armed Forces Staff College, he earned the Commandant's Writing Award for his joint critical analysis team article, "Interagency Operations Centers: An Opportunity We Can't Ignore," *Parameters*, vol.28, no. 4 (Winter 1998-99), pp 99-112. He is an Air Force special operator with a Master of Science degree in Defense Analysis (Irregular Warfare) from the Naval Postgraduate School (NPS) in Monterey, California. His NPS thesis, "Gold, Not Purple: Lessons from USAID-USMILGP Cooperation in El Salvador, 1980-1992," inspired "Today It's Gold, Not Purple," an article published in *Joint Force Quarterly*, no. 20, Autumn/Winter 1998-99, pp 100-106.

The second researcher, Lt Col Alvin J. Bedgood, Civil Air Patrol, (and Major, US Army (*Retired*)), is currently a defense contractor and Deputy Project Manager for the Special Operations Forces Systems Integration Facility (SIF) support contract at HQUSSOCOM. Bedgood spent most of his 21-year military career with operational units deployed outside of the United States, completing five tours in Europe and Asia, in addition to serving in the Persian Gulf War, and two deployments to the Balkans. He ended his career in the unique "three hatted" position of Deputy Commander, US Army Joint STARS, Deputy Commander/Army, 93rd Operations Group, and Assistant Deputy Wing Commander, 93rd Air Control Wing (JSTARS). Lt Col Bedgood is a graduate of the Army Command and Staff College and a Microsoft Certified Systems Engineer. He holds an Educational Specialist Degree (EdS) in Educational Leadership (focus: applying Information Technology to Decision-Making) from National-Louis University, a Master of Science Degree (MS) in International Relations from Troy State University, and a Bachelor of Arts in History (focus: Western Civilization) from Loyola University.

The third researcher, Col (S) Jerry F. Miller, is currently assigned to HQUSSOCOM as a Program Analyst in the Center for Force Structure, Requirements, Resources, and Strategic Assessments. Miller attended the United States Air Force Academy, graduating in 1979 with a Bachelor of Science degree in Basic Sciences. He received his Master's Degree in Management and Human Relations from Webster University. An experienced rescue and special operations helicopter pilot, Miller has been the Operations Officer for the 39th and 56th Rescue Squadrons, and Commander of the 56th Rescue Squadron in Keflavik, Iceland. In Iceland, he was involved in several rescue missions of international interest, and was selected as the Air Combat Command nominee for both the Cheney Award and Jabara Award for outstanding airmanship. As Commander, Air Force Forces, Joint Task Force-Bravo (JTF-Bravo) at Soto Cano Air Base, Honduras, he was involved in the largest airlift of disaster relief supplies since the Berlin Airlift.

INITIAL DISTRIBUTION LIST

		No. Copies
1.	Defense Technical Information Center 8725 John J. Kingman Rd., Ste 0944 Ft. Belvoir, VA 22060-6218	2
2.	Dudley Knox Library Naval Postgraduate School 411 Dyer Rd. Monterey, CA 93943-5101	2
3.	Dr. John Arquilla, Code CC Naval Postgraduate School Monterey, CA 93943-5002	2
4.	Office, Assistant Secretary of Defense for SOLIC 2500 Defense Pentagon, Room 2B525 Washington, D.C. 20301-2500	2
5.	Commander, Air Force Special Operations Command 100 Bartley St. Hurlburt Field, FL 32544-5273	1
6.	Commander in Chief, United States Special Operations Command 7701 Tampa Point Boulevard MacDill AFB, FL 33621-5323	1
7.	USAF Institute for National Security Studies HQ USAFA/DFES 2354 Fairchild Drive, Suite 5L27 USAF Academy, CO 80840-5000	2
8.	AWC/NS 325 Chennault Circle Maxwell AFB, AL 36112-6427	2
9.	Chairman, Future Concepts Working Group SOOP-PG-F 7701 Tampa Point Boulevard MacDill AFB, FL 33621-5323	9

10.	Dr. Steven Metz	1
	Strategic Studies Institute	
	U.S. Army War College	
	Carlisle Barracks, PA 17013-5244	
11.	Dr. Margaret J. Wheatley	1
	Kellner-Rogers & Wheatley Inc.	
	P.O. Box 1407	
	Provo, UT 84603	
12.	Michael Vlahos	1
	11100 Johns Hopkins Road	
	Laurel, MD 20723-6099	
13.	John Seely Brown and Paul Duguid	1
	Harvard Business School Press	
	60 Harvard Way	
	Boston, MA 02163	
14.	US Commission on National Security/21 st Century	1
15.	Dr. Martin Libicki	1
16.	Jennifer Duncan	1
	Center for Terrorism and Irregular Warfare (Code CC/Jd)	
	Naval Postgraduate School	
	Monterey, CA 93943-5000	
17.	Library	1
	Army War College	
	Carlisle Barracks, PA 17013	
18.	Library	1
	Naval War College	
	Newport, RI 02840	
19.	Department of Military Strategy	1
	National War College (NWMS)	
	Ft. Leslie J. McNair	
	Washington, D.C. 20319-6111	
20.	US Army Command and General Staff College	1
	ATTN: Library	
	Ft. Leavenworth, KS 66027-6900	

21. Library 1
Air War College
Maxwell AFB, AL 36112-6428
22. US Military Academy 1
ATTN: Library
Westpoint, NY 10996
23. US Naval Academy 1
ATTN: Library
Annapolis, MD 21412
24. Maraquat Memorial Library 1
US Army John F. Kennedy Special Warfare Center
Rm. C287, Bldg 3915
Ft. Bragg, NC 28307-5000
25. Commander 1
Naval Special Warfare Center
NAB Coronado
San Diego, CA 93155
26. Commandant, Joint SOF University 1